

SEQUENCE LISTING

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      Kanatani, Naoko
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      Zanma, Akira
      Kobayashi, Shinji
      Yamana, Kei

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<151> 2004-10-20

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ccc tgc ctg gca tcc agg agc cac ggc tca tgg aac agt gcc ttc tag Pro Cys Leu Ala Ser Arg Ser His Gly Ser Trp Asn Ser Ala Phe 240 245 250	1012
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Pro Trp Thr Pro Pro Gln Cys Pro Pro Gly Val Pro Leu Val Leu Asp
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Gly Cys Gly Cys Cys Arg Val Cys Ala Arg Arg Leu Gly Glu Ser Cys
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Asp His Leu His Val Cys Asp Pro Ser Gln Gly Leu Val Cys Gln Pro
 65 70 75 80

Gly Ala Gly Pro Ser Gly Arg Gly Ala Val Cys Leu Phe Glu Glu Asp
 85 90 95

Asp Gly Ser Cys Glu Val Asn Gly Arg Arg Tyr Leu Asp Gly Glu Thr
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Phe Lys Pro Asn Cys Arg Val Leu Cys Arg Cys Asp Asp Gly Gly Phe
 115 120 125

Thr Cys Leu Pro Leu Cys Ser Glu Asp Val Arg Leu Pro Ser Trp Asp
 130 135 140

Cys Pro Arg Pro Arg Arg Ile Gln Val Pro Gly Arg Cys Cys Pro Glu
145 150 155 160

Trp Val Cys Asp Gln Ala Val Met Gln Pro Ala Ile Gln Pro Ser Ser
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Ala Gln Gly His Gln Leu Ser Ala Leu Val Thr Pro Ala Ser Ala Asp
180 185 190

Gly Pro Cys Pro Asn Trp Ser Thr Ala Trp Gly Pro Cys Ser Thr Thr
195 200 205

Cys Gly Leu Gly Ile Ala Thr Arg Val Ser Asn Gln Asn Arg Phe Cys
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Met Ala Asp Thr Gly Leu Arg Arg Val
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gtt ccc agc gac ctt tat ccc ctt gtg ctc aga ttt ctg cgg gat agc 162
Val Pro Ser Asp Leu Tyr Pro Leu Val Leu Arg Phe Leu Arg Asp Ser
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Gln Leu Ser Glu Val Ala Ser Lys Phe Ala Lys Ala Thr Gly Ala Thr
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Gln Gln Asp Ala Asn Ala Ser Ser Leu Leu Asp Ile Tyr Ser Phe Trp
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ctc aag tcc acc aaa gcc cca aag gtg aag tta cag tca aat gga cca 306

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Lys	Ala	Ala	Ala	Gln	Val	Lys	Arg	Ala	Ser	Val	Pro	Gln	His	Ala	Gly	
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Lys	Ala	Ala	Ala	Lys	Ala	Ser	Glu	Ser	Ser	Ser	Ser	Glu	Glu	Ser	Ser	
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gag	gaa	gag	gaa	gag	gac	aaa	aag	aaa	aag	cct	gtc	cag	aag	gca	gct	546
Glu	Glu	Glu	Glu	Glu	Asp	Lys	Lys	Lys	Lys	Pro	Val	Gln	Lys	Ala	Ala	
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Ser	Glu	Ser	Asp	Ser	Asp	Ser	Asp	Ser	Asp	Ser	Ser	Ser	Glu	Glu	Glu	
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Thr	Pro	Gln	Thr	Gln	Lys	Pro	Lys	Ala	Ala	Val	Ala	Ala	Lys	Ala	Gln	
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act	aaa	gcc	gaa	gcc	aaa	cca	ggc	aca	cca	gcg	aaa	gca	cag	cct	aag	738
Thr	Lys	Ala	Glu	Ala	Lys	Pro	Gly	Thr	Pro	Ala	Lys	Ala	Gln	Pro	Lys	
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Val	Ala	Asn	Gly	Lys	Ala	Ala	Ala	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	
		220					225					230				
gat	gac	tca	gag	gaa	gag	aag	aag	gca	gct	gca	cct	ccc	aag	aag	act	834
Asp	Asp	Ser	Glu	Glu	Glu	Lys	Lys	Ala	Ala	Ala	Pro	Pro	Lys	Lys	Thr	
	235					240					245					
gta	cca	aaa	aag	caa	gtc	gtg	gcc	aag	gcc	cca	gtg	aaa	gta	gct	gcc	882
Val	Pro	Lys	Lys	Gln	Val	Val	Ala	Lys	Ala	Pro	Val	Lys	Val	Ala	Ala	
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gcc	ccc	acc	cag	aag	agc	tcc	agc	agt	gag	gat	tct	tcc	agt	gaa	gag	930
Ala	Pro	Thr	Gln	Lys	Ser	Ser	Ser	Ser	Glu	Asp	Ser	Ser	Ser	Glu	Glu	
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gag	gag	gga	cag	aga	caa	ccc	atg	aag	aaa	aaa	gca	ggc	ccc	tac	agt	978
Glu	Glu	Gly	Gln	Arg	Gln	Pro	Met	Lys	Lys	Lys	Ala	Gly	Pro	Tyr	Ser	
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Gln	Ala	Pro	Lys	Lys	Ala	Ala	Ala	Gln	Thr	Gln	Pro	Ala	Asp	Ser	Ser		
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Pro	Pro	Ala	Lys	Thr	Val	Val	Ser	Lys	Thr	Pro	Ala	Lys	Ala	Ala	Pro		
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Val	Lys	Lys	Lys	Ala	Glu	Ser	Ser	Ser	Asp	Ser	Ser	Asp	Ser	Asp	Ser		
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Ser	Glu	Asp	Glu	Ala	Pro	Ala	Lys	Pro	Val	Ser	Thr	Thr	Lys	Ser	Pro		
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Lys	Pro	Ala	Val	Thr	Pro	Lys	Pro	Ser	Ala	Ala	Lys	Ala	Val	Thr	Thr		
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Pro	Lys	Gln	Pro	Ala	Gly	Ser	Asn	Gln	Lys	Pro	Gln	Ser	Arg	Lys	Ala		
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Ala	Ala	Pro	Ala	Lys	Gln	Ala	Pro	Gln	Ala	Ala	Gly	Asp	Ser	Ser	Ser		
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Asp	Ser	Asp	Ser	Ser	Ser	Ser	Glu	Glu	Glu	Glu	Lys	Thr	Pro	Lys	Pro		
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Gly	Lys	Lys	Ala	Glu	Ala	Lys	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser		
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Ser Leu Leu Asp Ile Tyr Ser Phe Trp Leu Lys Ser Thr Lys Ala Pro
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Ala Thr Pro Ala Glu Ala Ala Gln Ser Asp Arg His Ser Leu Leu Glu	
15 20 25	
cac agc cgc gag ttc ttg gac ttc ttc tgg gac att gcg aaa ccg gat	147
His Ser Arg Glu Phe Leu Asp Phe Phe Trp Asp Ile Ala Lys Pro Asp	
30 35 40	
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Gln Glu Thr Arg Leu Arg Ala Thr Glu Lys Leu Leu Glu Tyr Leu Arg	
45 50 55 60	
aca agg ccc aat gat tcg gag atg aaa tat gcc ctg aag cgc cta atc	243
Thr Arg Pro Asn Asp Ser Glu Met Lys Tyr Ala Leu Lys Arg Leu Ile	

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Ile	Leu	Asp	Gln	Ile	Gln	Glu	Lys	Tyr	Ser	Leu	Gln	Ala	Met	Asn	Lys					
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gca	atg	atg	aga	cct	agt	ctc	ttt	gca	aac	ctt	ttt	gga	gtg	cta	gcc	435				
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cag	agg	gtg	ccg	aca	aag	ctc	gag	tca	ctc	atg	ggc	tcg	gtt	gac	cta	723				
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gcc	aac	tct	gtc	aag	aag	gag	cac	aag	ctg	cct	aat	gtg	gct	ctg	gac	819				
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Leu	Leu	Arg	Leu	Ala	Leu	Lys	Glu	Ser	Arg	Phe	Glu	Leu	Phe	Trp	Lys					
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aag	gtt	ttg	gag	gag	ggg	ctg	ctg	aag	aat	ccg	tcc	tgg	aca	tcc	agc	915				
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285					290					295					300					
tac	atg	tgc	ttc	cgc	cta	ctg	ggt	gcg	tct	ctg	ccg	ctt	ctg	tca	gag	963				
Tyr	Met	Cys	Phe	Arg	Leu	Leu	Gly	Ala	Ser	Leu	Pro	Leu	Leu	Ser	Glu					

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Pro	Lys	Arg	Gln	Leu	Thr	Met	Met	Val	Ala	Phe	Thr	Thr	Ile	Thr	Asn					
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Gln	Gly	Leu	Pro	Val	Met	Pro	Thr	Phe	Trp	Arg	Val	Thr	Arg	Phe	Leu					
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Asn	Ala	Glu	Ala	Leu	Gln	Ser	Tyr	Val	Ala	Trp	Leu	Arg	Asp	Met	Phe					
			400						405						410					
ctg	cag	cct	gac	ctg	aac	tcc	ttg	gtt	gac	ttc	agc	act	gcc	aac	cag	1299				
Leu	Gln	Pro	Asp	Leu	Asn	Ser	Leu	Val	Asp	Phe	Ser	Thr	Ala	Asn	Gln					
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aag	aga	gct	cag	gac	gcc	tcg	ttg	aat	gtg	cct	gag	cga	gct	gta	ttc	1347				
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Arg	Leu	Arg	Lys	Trp	Ile	Ile	His	Arg	Leu	Val	Ser	Leu	Val	Asp	His					
			445			450						455			460					
ttg	cat	ctg	gag	aag	gat	gaa	gct	gtg	gtt	gag	caa	ata	gcc	agg	ttt	1443				
Leu	His	Leu	Glu	Lys	Asp	Glu	Ala	Val	Val	Glu	Gln	Ile	Ala	Arg	Phe					
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Cys	Leu	Phe	His	Ala	Phe	Phe	Lys	Thr	Lys	Lys	Ala	Thr	Pro	Gln	Ile					
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cca	gag	acg	aag	cag	cac	ttc	tcc	ttc	cct	ttg	gac	gac	cgc	aac	cgt	1539				
Pro	Glu	Thr	Lys	Gln	His	Phe	Ser	Phe	Pro	Leu	Asp	Asp	Arg	Asn	Arg					
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ggg	gtc	ttt	gtc	agt	gcc	ttc	ttc	agc	cta	ctg	cag	acg	ctc	agt	gtg	1587				
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aag	ttc	agg	cag	aca	cca	gac	ctg	gct	gaa	aat	ggg	aag	cct	tgg	act	1635				
Lys	Phe	Arg	Gln	Thr	Pro	Asp	Leu	Ala	Glu	Asn	Gly	Lys	Pro	Trp	Thr					
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Tyr	Arg	Leu	Val	Gln	Leu	Ala	Asp	Met	Leu	Leu	Asn	His	Asn	Arg	Asn					

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Val	Thr	Ser	Val	Thr	Ser	Leu	Thr	Thr	Gln	Gln	Arg	Gln	Ala	Trp	Asp					
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cag	atg	atg	agt	act	ctg	aag	gaa	tta	gag	gcc	cgc	tcc	tct	gag	acc		1779			
Gln	Met	Met	Ser	Thr	Leu	Lys	Glu	Leu	Glu	Ala	Arg	Ser	Ser	Glu	Thr					
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agg	gcc	att	gcc	ttc	cag	cac	ctg	ctg	ctt	ctg	gtg	ggc	ctc	cac	atc		1827			
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ttc	aag	tcc	cct	gca	gaa	agc	tgt	gat	gtc	cta	gga	gac	att	cag	act		1875			
Phe	Lys	Ser	Pro	Ala	Glu	Ser	Cys	Asp	Val	Leu	Gly	Asp	Ile	Gln	Thr					
605					610					615					620					
tgc	atc	aag	aaa	agc	atg	gag	cag	aat	ccc	cgc	cga	tca	cgc	tct	aga		1923			
Cys	Ile	Lys	Lys	Ser	Met	Glu	Gln	Asn	Pro	Arg	Arg	Ser	Arg	Ser	Arg					
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gcc	aaa	gcc	tcc	cag	gag	cca	gta	tgg	gtg	gag	gtg	atg	gtg	gag	atc		1971			
Ala	Lys	Ala	Ser	Gln	Glu	Pro	Val	Trp	Val	Glu	Val	Met	Val	Glu	Ile					
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ttg	ctg	tcc	ttg	ctg	gct	caa	ccc	agc	aac	ttg	atg	cgc	cag	gtg	gtc		2019			
Leu	Leu	Ser	Leu	Leu	Ala	Gln	Pro	Ser	Asn	Leu	Met	Arg	Gln	Val	Val					
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cgg	agt	gta	ttt	ggc	cat	atc	tgt	ccc	cac	ctt	act	cca	cgt	tgt	ctg		2067			
Arg	Ser	Val	Phe	Gly	His	Ile	Cys	Pro	His	Leu	Thr	Pro	Arg	Cys	Leu					
	670					675					680									
cag	cta	atc	ctg	gct	gtg	ctc	agc	cct	gtg	aca	aac	gag	gat	gag	gat		2115			
Gln	Leu	Ile	Leu	Ala	Val	Leu	Ser	Pro	Val	Thr	Asn	Glu	Asp	Glu	Asp					
685					690					695					700					
gac	aac	gtg	gtg	gtc	act	gat	gac	gct	gat	gag	aag	cag	ctg	cag	cat		2163			
Asp	Asn	Val	Val	Val	Thr	Asp	Asp	Ala	Asp	Glu	Lys	Gln	Leu	Gln	His					
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gga	gag	gac	gaa	gac	tca	gat	aat	gag	gac	aat	aag	aac	tca	gag	agt		2211			
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Asp	Met	Asp	Ser	Glu	Asp	Gly	Glu	Glu	Ser	Glu	Glu	Glu	Asp	Arg	Asp					
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765					770					775					780					
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Gly	Asp	Glu	Ala	Met	Met	Ala	Leu	Asp	Gln	Asn	Leu	Ala	Ser	Leu	Phe					

785										790					795					
aaa	gag	cag	aag	atg	cgc	atc	cag	gcc	cgg	aat	gag	gag	aaa	aac	aag		2451			
Lys	Glu	Gln	Lys	Met	Arg	Ile	Gln	Ala	Arg	Asn	Glu	Glu	Lys	Asn	Lys					
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cta	cag	aag	gag	aag	aag	ctc	cga	cgg	gac	ttc	caa	atc	agg	gca	cta		2499			
Leu	Gln	Lys	Glu	Lys	Lys	Leu	Arg	Arg	Asp	Phe	Gln	Ile	Arg	Ala	Leu					
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gac	ctg	atc	gag	gtg	ctg	gtg	acc	aag	cag	cct	gag	cac	ccc	ctg	atc		2547			
Asp	Leu	Ile	Glu	Val	Leu	Val	Thr	Lys	Gln	Pro	Glu	His	Pro	Leu	Ile					
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Leu	Glu	Leu	Leu	Glu	Pro	Leu	Leu	Asn	Val	Ile	Gln	His	Ser	Met	Arg					
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agc	aaa	ggc	tcc	acc	aag	cag	gag	cag	gac	ctc	ctg	cac	aag	acc	gcc		2643			
Ser	Lys	Gly	Ser	Thr	Lys	Gln	Glu	Gln	Asp	Leu	Leu	His	Lys	Thr	Ala					
				865					870					875						
cgc	atc	ttc	atg	cac	cac	ctg	tgt	cgt	gcc	cgc	cgc	tac	tgc	cac	gag		2691			
Arg	Ile	Phe	Met	His	His	Leu	Cys	Arg	Ala	Arg	Arg	Tyr	Cys	His	Glu					
			880					885					890							
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		895					900					905								
cag	cag	gct	ggc	agc	cag	gct	gat	gcc	tct	gtc	gcc	cta	tac	tat	ttc		2787			
Gln	Gln	Ala	Gly	Ser	Gln	Ala	Asp	Ala	Ser	Val	Ala	Leu	Tyr	Tyr	Phe					
	910					915					920									
aat	gcc	tct	ctg	tac	ctg	ctg	cga	gtc	ctc	aag	ggc	aac	acc	aat	aag		2835			
Asn	Ala	Ser	Leu	Tyr	Leu	Leu	Arg	Val	Leu	Lys	Gly	Asn	Thr	Asn	Lys					
	925					930				935					940					
agg	cac	caa	gat	ggc	cat	aag	tta	cac	gga	gct	gac	aca	gag	gac	tca		2883			
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gag	gac	cag	gct	gct	aac	tgc	tta	gac	ttg	gac	ttt	gtg	acc	cgg	gtg		2931			
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Tyr	Ser	Ala	Ser	Leu	Glu	Ser	Leu	Leu	Thr	Lys	Arg	Asn	Ser	Ser	Leu					
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acg	gtc	ccc	atg	ttc	ctc	agc	ctc	ttc	tcc	aga	tac	cca	gtg	atc	tgt		3027			
Thr	Val	Pro	Met	Phe	Leu	Ser	Leu	Phe	Ser	Arg	Tyr	Pro	Val	Ile	Cys					
	990					995					1000									
aag	aac	ctg	ctt	ccc	gtc	ctg	gct	cag	cat	gtg	gct	ggc	cca	tct			3072			
Lys	Asn	Leu	Leu	Pro	Val	Leu	Ala	Gln	His	Val	Ala	Gly	Pro	Ser						
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cgg	ccc	cgc	cat	cag	gcc	cag	gca	tgc	ctg	atg	ctc	cag	aag	act			3117			
Arg	Pro	Arg	His	Gln	Ala	Gln	Ala	Cys	Leu	Met	Leu	Gln	Lys	Thr						

1020		1025		1030	
ctg tct gca cga gag	ctg aga gtc tgt ttt	gag gat cct gag tgg	3162		
Leu Ser Ala Arg Glu	Leu Arg Val Cys Phe	Glu Asp Pro Glu Trp			
1035	1040	1045			
gag cag ctg att acc	caa ctc ttg gga aag	gcc acc cag acc ctg	3207		
Glu Gln Leu Ile Thr	Gln Leu Leu Gly Lys	Ala Thr Gln Thr Leu			
1050	1055	1060			
cag act ctt ggg gag	gca cag agc aag ggg	gag cac cag aag gag	3252		
Gln Thr Leu Gly Glu	Ala Gln Ser Lys Gly	Glu His Gln Lys Glu			
1065	1070	1075			
cta tcc atc ttg gag	ctg ctc aac act ctg	ttg agg aca gtc aat	3297		
Leu Ser Ile Leu Glu	Leu Leu Asn Thr Leu	Leu Arg Thr Val Asn			
1080	1085	1090			
cac gag aag ctg tct	gtg gac ctc act gct	ccc ttg ggc gtg ctt	3342		
His Glu Lys Leu Ser	Val Asp Leu Thr Ala	Pro Leu Gly Val Leu			
1095	1100	1105			
cag agc aag caa cag	aag ctg cag caa agc	ctg cag cag ggg aat	3387		
Gln Ser Lys Gln Gln	Lys Leu Gln Gln Ser	Leu Gln Gln Gly Asn			
1110	1115	1120			
cac tca tct ggc tcc	aat cgc ctc tat gat	ctc tac tgg cag gcc	3432		
His Ser Ser Gly Ser	Asn Arg Leu Tyr Asp	Leu Tyr Trp Gln Ala			
1125	1130	1135			
atg agg atg cta gga	gtc caa cgt cca aag	tca gaa aag aag aat	3477		
Met Arg Met Leu Gly	Val Gln Arg Pro Lys	Ser Glu Lys Lys Asn			
1140	1145	1150			
gcc aag gat att cct	agt gac acc cag agc	ccc gtc agc aca aag	3522		
Ala Lys Asp Ile Pro	Ser Asp Thr Gln Ser	Pro Val Ser Thr Lys			
1155	1160	1165			
cgg aag aaa aag gga	ttc ttg cca gag acc	aag aag cga aag aaa	3567		
Arg Lys Lys Lys Gly	Phe Leu Pro Glu Thr	Lys Lys Arg Lys Lys			
1170	1175	1180			
ctt aaa tct gag ggc	acc aca cca gaa aag	aat gct gcg tca cag	3612		
Leu Lys Ser Glu Gly	Thr Thr Pro Glu Lys	Asn Ala Ala Ser Gln			
1185	1190	1195			
cag gat gca gtg aca	gag ggt gcc atg cct	gct gcc act ggt aaa	3657		
Gln Asp Ala Val Thr	Glu Gly Ala Met Pro	Ala Ala Thr Gly Lys			
1200	1205	1210			
gac cag ccc ccc agc	aca ggc aag aag aaa	agg aag agg gta aag	3702		
Asp Gln Pro Pro Ser	Thr Gly Lys Lys Lys	Arg Lys Arg Val Lys			
1215	1220	1225			
gcc agc acc cca tcc	cag gtg aat ggg ata	act ggg gcc aag agt	3747		
Ala Ser Thr Pro Ser	Gln Val Asn Gly Ile	Thr Gly Ala Lys Ser			
1230	1235	1240			
cca gct ccc agt aac	ccc acc cta agc ccc	agc acc cct gcc aag	3792		
Pro Ala Pro Ser Asn	Pro Thr Leu Ser Pro	Ser Thr Pro Ala Lys			

Leu Leu Gln Ser Phe Glu Asp Ile Pro Leu Cys Asp Ile Leu Asp Gln
 100 105 110

Ile Gln Glu Lys Tyr Ser Leu Gln Ala Met Asn Lys Ala Met Met Arg
 115 120 125

Pro Ser Leu Phe Ala Asn Leu Phe Gly Val Leu Ala Leu Phe Gln Ser
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Gly Arg Leu Val Lys Asp Lys Glu Ala Leu Met Lys Ser Val Gln Leu
 145 150 155 160

Leu Lys Ile Leu Ser Gln His Pro Asn His Leu Gln Gly Gln Pro Ile
 165 170 175

Lys Ala Leu Val Asp Ile Leu Ser Glu Val Pro Glu Ser Met Phe Gln
 180 185 190

Glu Ile Leu Pro Lys Val Leu Lys Gly Asn Met Lys Val Ile Leu Arg
 195 200 205

Ser Pro Lys Tyr Leu Glu Leu Phe Leu Leu Ala Lys Gln Arg Val Pro
 210 215 220

Thr Lys Leu Glu Ser Leu Met Gly Ser Val Asp Leu Phe Ser Glu Asp
 225 230 235 240

Asn Ile Pro Ser Leu Val Asn Ile Leu Lys Val Ala Ala Asn Ser Val
 245 250 255

Lys Lys Glu His Lys Leu Pro Asn Val Ala Leu Asp Leu Leu Arg Leu
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Ala Leu Lys Glu Ser Arg Phe Glu Leu Phe Trp Lys Lys Val Leu Glu
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Glu Gly Leu Leu Lys Asn Pro Ser Trp Thr Ser Ser Tyr Met Cys Phe
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Arg Leu Leu Gly Ala Ser Leu Pro Leu Leu Ser Glu Glu Gln Leu Gln
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Leu Val Met Arg Gly Asp Leu Ile Arg His Phe Gly Glu Asn Met Val
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Ile Ser Lys Pro Gln Asn Leu Phe Lys Ile Ile Pro Glu Ile Ser Thr
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Tyr Val Gly Thr Phe Leu Glu Gly Cys Gln Asp Asp Pro Lys Arg Gln
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Leu Thr Met Met Val Ala Phe Thr Thr Ile Thr Asn Gln Gly Leu Pro
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Val Met Pro Thr Phe Trp Arg Val Thr Arg Phe Leu Asn Ala Glu Ala
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Leu Gln Ser Tyr Val Ala Trp Leu Arg Asp Met Phe Leu Gln Pro Asp
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Leu Asn Ser Leu Val Asp Phe Ser Thr Ala Asn Gln Lys Arg Ala Gln
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Asp Ala Ser Leu Asn Val Pro Glu Arg Ala Val Phe Arg Leu Arg Lys
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Trp Ile Ile His Arg Leu Val Ser Leu Val Asp His Leu His Leu Glu
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Ala Phe Phe Lys Thr Lys Lys Ala Thr Pro Gln Ile Pro Glu Thr Lys
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Gln His Phe Ser Phe Pro Leu Asp Asp Arg Asn Arg Gly Val Phe Val
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Ser Ala Phe Phe Ser Leu Leu Gln Thr Leu Ser Val Lys Phe Arg Gln
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Gln Leu Ala Asp Met Leu Leu Asn His Asn Arg Asn Val Thr Ser Val
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Thr Leu Lys Glu Leu Glu Ala Arg Ser Ser Glu Thr Arg Ala Ile Ala
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Phe Gln His Leu Leu Leu Leu Val Gly Leu His Ile Phe Lys Ser Pro
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Ala Glu Ser Cys Asp Val Leu Gly Asp Ile Gln Thr Cys Ile Lys Lys
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Glu Asp Gly Glu Glu Ser Glu Glu Glu Asp Arg Asp Lys Asp Val Asp
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Pro Gly Phe Arg Gln Gln Leu Met Glu Val Leu Lys Ala Gly Asn Ala
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Leu Ser Thr Lys Glu Val Ile Arg Lys Ser Pro His Pro Gln Ser
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Ala Leu Pro Lys Lys Arg Ala Arg Leu Ser Leu Val Ser Arg Ser
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Met Gly Arg Arg Ala Arg Gly Arg Arg Phe Gln Gln
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Pro Pro Gln Pro Glu Gly Glu Glu Asp Ala Ser Asp Gly Gly Arg Lys
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Arg Gly Gln Ala Gly Trp Glu Gly Gly Tyr Pro Glu Ile Val Lys Glu
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Asn Lys Leu Phe Glu His Tyr Tyr Gln Glu Leu Lys Ile Val Pro Glu
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aca ctg aga atc act ggg tac aaa agc cat gcc aaa gag att ctc cat 351
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Gly	Gln	Lys	Val	Glu	Val	Pro	Gln	Pro	Leu	Ser	Trp	Tyr	Pro	Glu	Glu	
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Ser	Lys	Thr	Thr	Gln	Leu	Ile	Glu	Met	Leu	His	Ala	Asp	Met	Ser	Val	
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Ser	Ala	Glu	Leu	Pro	Gly	Leu	Lys	Trp	Met	Pro	Gly	Val	Ser	Gln	Trp	
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Glu His Tyr Tyr Gln Glu Leu Lys Ile Val Pro Glu Gly Glu Trp Asp
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Gln Phe Met Glu Ser Leu Arg Glu Pro Leu Pro Ala Thr Leu Arg Ile
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Glu Val Pro Gln Pro Leu Ser Trp Tyr Pro Glu Glu Leu Ala Trp His
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Thr Asn Leu Ser Arg Lys Ile Leu Arg Lys Ser Pro Leu Leu Ala Lys
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Phe His Gln Phe Leu Val Ser Glu Thr Glu Ser Gly Asn Ile Ser Arg
145 150 155 160

Gln Glu Ala Val Ser Met Ile Pro Pro Leu Leu Leu Asn Val Glu Pro
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Gln Leu Ile Glu Met Leu His Ala Asp Met Ser Val Pro Phe Pro Glu
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Lys Glu Ile Leu Phe Tyr Asp Arg Ile Leu Cys Asp Val Pro Cys Ser
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Gly Asp Gly Thr Met Arg Lys Asn Ile Asp Val Trp Lys Lys Trp Thr
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Cys Ser Leu Asn Pro Val Glu Asp Glu Ala Val Ile Ala Ala Leu Leu
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Glu Lys Ser Glu Gly Ala Leu Glu Leu Ala Asp Val Ser Ala Glu Leu
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Pro Gly Leu Lys Trp Met Pro Gly Val Ser Gln Trp Lys Val Met Thr
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Asp Leu Glu Thr Ala His Asn Thr Glu Asn Thr Glu Ser Asn Glu Lys
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Lys Asp Gly Val Cys Gly Pro Pro Pro Ser Lys Lys Met Lys Leu Phe
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Gly Phe Lys Glu Asp Pro Phe Val Phe Ile Pro Glu Asp Asp Pro Leu
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Met Val Ser Lys Glu Leu Arg Asn Val Leu Leu Asn Asn Ser Glu Lys
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Met Lys Val Ile Asn Thr Gly Ile Lys Val Trp Cys Arg Asn Asn Ser
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Gly Glu Glu Phe Asp Cys Ala Phe Arg Leu Ala Gln Glu Gly Ile Tyr
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Thr Leu Tyr Pro Phe Ile Asn Ser Arg Ile Ile Thr Val Ser Met Glu
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Asp Val Lys Thr Leu Leu Thr Gln Glu Asn Pro Phe Phe Arg Lys Leu
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Ser Ser Glu Ala Tyr Ser Gln Val Lys Asp Leu Ala Lys Gly Ser Val
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Val Leu Lys Tyr Glu Pro Asp Ser Ala Asn Pro Asp Thr Leu Gln Cys
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Pro Ile Val Leu Cys Gly Trp Arg Gly Lys Ala Ser Ile Arg Thr Phe
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Val Pro Lys Asn Glu Arg Leu His Tyr Leu Arg Met Met Gly Leu Glu
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Leu Ser Trp Thr Gly Pro Leu Gln Gly Gln Gln His His Leu Val Glu
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Tyr Met Glu Arg Arg Leu Ala Ala Leu Glu Glu Arg Leu Ala Gln Cys
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Gln Asp Gln Ser Ser Arg His Ala Ala Glu Leu Arg Asp Phe Lys Asn
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Lys Met Leu Pro Leu Leu Glu Val Ala Glu Lys Glu Arg Glu Thr Leu
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Arg Thr Glu Ala Asp Ser Ile Ser Gly Arg Val Asp Arg Leu Glu Arg
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Glu Val Asp Tyr Leu Glu Thr Gln Asn Pro Ala Leu Pro Cys Val Glu	
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Leu Asp Glu Lys Val Thr Gly Gly Pro Gly Ala Lys Gly Lys Gly Arg	
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Arg Asn Glu Lys Tyr Asp Met Val Thr Asp Cys Ser Tyr Thr Val Ala	
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Gln Val Arg Ser Met Lys Ile Leu Lys Arg Phe Gly Gly Ser Ala Gly	
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Tyr Ala Arg Arg Pro Pro Gly Gly Pro Gly Gly Gly Gly Glu Leu Glu	
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Ala Val Tyr Ala Thr Arg Asp Asp Asp Arg His Leu Cys Leu Ala Lys	
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Pro Arg Glu Asn Ala Glu Ala Ala Phe Val Ile Cys Gly Thr Leu Tyr	
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Phe Asp Ala Ser Gly Thr Leu Ala Pro Glu Arg Ala Ala Leu Ser Tyr
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Phe Pro Arg Arg Tyr Gly Ala His Ala Ser Leu Arg Tyr Asn Pro Arg
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Glu Arg Gln Leu Tyr Ala Trp Asp Asp Gly Tyr Gln Ile Val Tyr Lys
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Leu Glu Met Lys Lys Lys Glu Glu Glu Val
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ccctctgttt tatgcagaac tccagatcct gggtagcatt ttagaactga acagcaaaca      1434

aacaccctaa atcttcactc ctgccctatg tccacaaagt ttagttccaa actcagagcc      1494

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Ser Arg His Ala Ala Glu Leu Arg Asp Phe Lys Asn Lys Met Leu Pro
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Val Thr Gly Gly Pro Gly Ala Lys Gly Lys Gly Arg Arg Asn Glu Lys
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Tyr Asp Met Val Thr Asp Cys Ser Tyr Thr Val Ala Gln Val Arg Ser
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Met Lys Ile Leu Lys Arg Phe Gly Gly Ser Ala Gly Leu Trp Thr Lys
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Phe Pro Ala Glu Ser Leu Ile Pro Pro Tyr Gly Leu Thr Ala Asp Thr
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Tyr Ile Asp Leu Ala Ala Asp Glu Glu Gly Leu Trp Ala Val Tyr Ala
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Ser Ala Tyr Lys Leu Val Cys Tyr Phe Thr Ser Trp Ser Gln Tyr Arg
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Glu Gly Val Gly Ser Phe Leu Pro Asp Ala Ile Gln Pro Phe Leu Cys
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Thr His Ile Ile Tyr Ser Phe Ala Asn Ile Ser Ser Asp Asn Met Leu
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Trp	Lys	Phe	Gly	Glu	Lys	Arg	Phe	Ser	Glu	Ile	Ala	Ser	Asn	Thr	Glu	
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Lys	Gln	Tyr	Phe	Ser	Thr	Leu	Ile	Lys	Glu	Leu	Asn	Ala	Glu	Phe	Thr	
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Lys	Asp	Thr	Arg	Phe	Asp	Arg	Tyr	Ser	Asn	Val	Asn	Tyr	Ala	Val	Gln	
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Tyr	Met	Ile	Arg	Leu	Gly	Ala	Gln	Ala	Ser	Lys	Leu	Leu	Met	Gly	Ile	
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Pro	Thr	Phe	Gly	Lys	Ser	Phe	Thr	Leu	Ala	Ser	Ser	Glu	Asn	Gln	Leu	
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Leu Thr Asn Ala Ile Lys Asp Ala Leu Ala	
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Ala Gln Ile Ala Gln His Leu Asp Phe Ile Asn Leu Met Thr Tyr Asp
 195 200 205

Phe His Gly Val Trp Arg Gln Ile Thr Gly His His Ser Pro Leu Phe
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Gln Gly Gln Lys Asp Thr Arg Phe Asp Arg Tyr Ser Asn Val Asn Tyr
 225 230 235 240

Ala Val Gln Tyr Met Ile Arg Leu Gly Ala Gln Ala Ser Lys Leu Leu
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Met Gly Ile Pro Thr Phe Gly Lys Ser Phe Thr Leu Ala Ser Ser Glu
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Met Gly Cys Val Lys Ser Arg Phe Leu Arg Asp Gly Ser Lys Ala Ser
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Asp Tyr Glu Ala Ile His Arg Glu Asp Leu Ser Phe Gln Lys Gly Asp
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Gln Met Val Val Leu Glu Glu Ala Gly Glu Trp Trp Lys Ala Arg Ser
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Asp Asn Glu Tyr Thr Ala Arg Glu Gly Ala Lys Phe Pro Ile Lys Trp			
385	390	395	400
aca gct cct gaa gcc atc aac ttt ggt tcc ttc acc atc aag tca gat			1425
Thr Ala Pro Glu Ala Ile Asn Phe Gly Ser Phe Thr Ile Lys Ser Asp			
	405	410	415
gtc tgg tcc ttt ggt atc ctg ctg atg gaa att gtc acc tat ggc cgg			1473
Val Trp Ser Phe Gly Ile Leu Leu Met Glu Ile Val Thr Tyr Gly Arg			
	420	425	430
atc cct tac cca ggt atg tca aac cca gag gtg att cgg gca cta gag			1521
Ile Pro Tyr Pro Gly Met Ser Asn Pro Glu Val Ile Arg Ala Leu Glu			
	435	440	445
cat ggg tac cgt atg cct cga cca gat aac tgt cca gaa gag ctc tac			1569
His Gly Tyr Arg Met Pro Arg Pro Asp Asn Cys Pro Glu Glu Leu Tyr			
	450	455	460
aat atc atg atc cgc tgc tgg aag aac cgc ccc gag gaa cgg ccc acc			1617
Asn Ile Met Ile Arg Cys Trp Lys Asn Arg Pro Glu Glu Arg Pro Thr			
465	470	475	480
ttt gaa tac atc cag agt gtg ctg gat gac ttc tac acg gcc act gag			1665
Phe Glu Tyr Ile Gln Ser Val Leu Asp Asp Phe Tyr Thr Ala Thr Glu			
	485	490	495
agc cag tat cag cag cag cct tga cagcagtaag gacatgagca gagccagaag			1719
Ser Gln Tyr Gln Gln Gln Pro			
500			
ccccatcagt gccttgacac gcccaacttg ctggggccac tctcagacac cacaccacac			1779
acactgcagc tgttgagtgg gtgggaggac ttcacaatct ctttctgact ctagtcatct			1839
gcaatccgcc actctcaggg cctccaagtt ggtatgtctc atttgcttgg aatgactgaa			1899
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 Pro Gly Phe Val Glu Gly Ser Glu Asp Thr Ile Val Val Ala Leu Tyr
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 Asp Tyr Glu Ala Ile His Arg Glu Asp Leu Ser Phe Gln Lys Gly Asp
 65 70 75 80
 Gln Met Val Val Leu Glu Glu Ala Gly Glu Trp Trp Lys Ala Arg Ser
 85 90 95
 Leu Ala Thr Lys Lys Glu Gly Tyr Ile Pro Ser Asn Tyr Val Ala Arg
 100 105 110
 Val Asn Ser Leu Glu Thr Glu Glu Trp Phe Phe Lys Gly Ile Ser Arg
 115 120 125
 Lys Asp Ala Glu Arg His Leu Leu Ala Pro Gly Asn Met Leu Gly Ser
 130 135 140
 Phe Met Ile Arg Asp Ser Glu Thr Thr Lys Gly Ser Tyr Ser Leu Ser
 145 150 155 160
 Val Arg Asp Phe Asp Pro Gln His Gly Asp Thr Val Lys His Tyr Lys
 165 170 175
 Ile Arg Thr Leu Asp Ser Gly Gly Phe Tyr Ile Ser Pro Arg Ser Thr
 180 185 190
 Phe Ser Ser Leu Gln Glu Leu Val Leu His Tyr Lys Lys Gly Lys Asp
 195 200 205
 Gly Leu Cys Gln Lys Leu Ser Val Pro Cys Val Ser Pro Lys Pro Gln
 210 215 220
 Lys Pro Trp Glu Lys Asp Ala Trp Glu Ile Pro Arg Glu Ser Leu Gln
 225 230 235 240

Met Glu Lys Lys Leu Gly Ala Gly Gln Phe Gly Glu Val Trp Met Ala
 245 250 255
 Thr Tyr Asn Lys His Thr Lys Val Ala Val Lys Thr Met Lys Pro Gly
 260 265 270
 Ser Met Ser Val Glu Ala Phe Leu Ala Glu Ala Asn Leu Met Lys Ser
 275 280 285
 Leu Gln His Asp Lys Leu Val Lys Leu His Ala Val Val Ser Gln Glu
 290 295 300
 Pro Ile Phe Ile Val Thr Glu Phe Met Ala Lys Gly Ser Leu Leu Asp
 305 310 315 320
 Phe Leu Lys Ser Glu Glu Gly Ser Lys Gln Pro Leu Pro Lys Leu Ile
 325 330 335
 Asp Phe Ser Ala Gln Ile Ser Glu Gly Met Ala Phe Ile Glu Gln Arg
 340 345 350
 Asn Tyr Ile His Arg Asp Leu Arg Ala Ala Asn Ile Leu Val Ser Ala
 355 360 365
 Ser Leu Val Cys Lys Ile Ala Asp Phe Gly Leu Ala Arg Ile Ile Glu
 370 375 380
 Asp Asn Glu Tyr Thr Ala Arg Glu Gly Ala Lys Phe Pro Ile Lys Trp
 385 390 395 400
 Thr Ala Pro Glu Ala Ile Asn Phe Gly Ser Phe Thr Ile Lys Ser Asp
 405 410 415
 Val Trp Ser Phe Gly Ile Leu Leu Met Glu Ile Val Thr Tyr Gly Arg
 420 425 430
 Ile Pro Tyr Pro Gly Met Ser Asn Pro Glu Val Ile Arg Ala Leu Glu
 435 440 445
 His Gly Tyr Arg Met Pro Arg Pro Asp Asn Cys Pro Glu Glu Leu Tyr
 450 455 460
 Asn Ile Met Ile Arg Cys Trp Lys Asn Arg Pro Glu Glu Arg Pro Thr
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Phe Glu Tyr Ile Gln Ser Val Leu Asp Asp Phe Tyr Thr Ala Thr Glu
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Ser Gln Tyr Gln Gln Gln Pro
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cacaggacaa gg atg gag ctc cat ttt ggc tcc tgc ctc tcc ggc tgt ttg 171
Met Glu Leu His Phe Gly Ser Cys Leu Ser Gly Cys Leu
1 5 10
gct ctg ctt gtc ttg ctg cct tcc ctg agc cta gca cag tac gag ggc 219
Ala Leu Leu Val Leu Leu Pro Ser Leu Ser Leu Ala Gln Tyr Glu Gly
15 20 25
tgg ccc tac cag ctc cag tac cct gag tac ttc cag cag ccc gct cct 267
Trp Pro Tyr Gln Leu Gln Tyr Pro Glu Tyr Phe Gln Gln Pro Ala Pro
30 35 40 45
gag cac cat cag cgg cag gtg ccc tcc gat gtg gtc aag atc cag gtc 315
Glu His His Gln Arg Gln Val Pro Ser Asp Val Val Lys Ile Gln Val
50 55 60
cgc ctg gcg ggc cag aag agg aag cac aat gag ggc cgc gtg gag gtc 363
Arg Leu Ala Gly Gln Lys Arg Lys His Asn Glu Gly Arg Val Glu Val
65 70 75
tac tac gaa ggc cag tgg ggc acg gtg tgc gac gat gac ttc tcg atc 411
Tyr Tyr Glu Gly Gln Trp Gly Thr Val Cys Asp Asp Asp Phe Ser Ile
80 85 90
cat gcc gcc cat gtg gtc tgc cgg caa gtg ggc tat gta gag gcc aag 459
His Ala Ala His Val Val Cys Arg Gln Val Gly Tyr Val Glu Ala Lys
95 100 105
tcc tgg gct gcc agc tcc tcc tac ggt cca ggc gaa ggc ccc atc tgg 507
Ser Trp Ala Ala Ser Ser Ser Tyr Gly Pro Gly Glu Gly Pro Ile Trp
110 115 120 125
ttg gac aat atc tac tgt act ggc aaa gag tcg acc ctg gca tct tgc 555
Leu Asp Asn Ile Tyr Cys Thr Gly Lys Glu Ser Thr Leu Ala Ser Cys
130 135 140
tcc tcc aat ggc tgg ggt gtc act gac tgc aag cac act gaa gac gtt 603

Ser	Ser	Asn	Gly	Trp	Gly	Val	Thr	Asp	Cys	Lys	His	Thr	Glu	Asp	Val	
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gga	gtg	gtg	tgt	agt	gag	aaa	aga	att	cct	ggc	ttc	aaa	ttt	gac	aat	651
Gly	Val	Val	Cys	Ser	Glu	Lys	Arg	Ile	Pro	Gly	Phe	Lys	Phe	Asp	Asn	
			160				165					170				
tcg	ttg	atc	aac	caa	ata	gag	agc	cta	aat	ata	cag	gtg	gaa	gac	atc	699
Ser	Leu	Ile	Asn	Gln	Ile	Glu	Ser	Leu	Asn	Ile	Gln	Val	Glu	Asp	Ile	
			175			180					185					
cgg	att	cgg	ccc	atc	ctt	tct	gcc	ttt	cgc	cat	cgc	aag	cct	gtg	aca	747
Arg	Ile	Arg	Pro	Ile	Leu	Ser	Ala	Phe	Arg	His	Arg	Lys	Pro	Val	Thr	
190					195					200					205	
gag	ggc	tac	gtg	gag	gtg	aag	gag	ggc	aag	gct	tgg	aag	cag	atc	tgc	795
Glu	Gly	Tyr	Val	Glu	Val	Lys	Glu	Gly	Lys	Ala	Trp	Lys	Gln	Ile	Cys	
			210						215				220			
aac	aaa	cac	tgg	aca	gcc	aag	aat	tcc	cac	gtg	gtc	tgt	ggc	atg	ttc	843
Asn	Lys	His	Trp	Thr	Ala	Lys	Asn	Ser	His	Val	Val	Cys	Gly	Met	Phe	
			225					230					235			
ggc	ttc	cct	gca	gag	aag	acc	tac	aac	ccc	aaa	gcc	tat	aaa	acc	ttt	891
Gly	Phe	Pro	Ala	Glu	Lys	Thr	Tyr	Asn	Pro	Lys	Ala	Tyr	Lys	Thr	Phe	
		240					245					250				
gcc	tcg	cgg	agg	aag	ctg	cgt	tac	tgg	aag	ttt	tct	atg	aac	tgc	acg	939
Ala	Ser	Arg	Arg	Lys	Leu	Arg	Tyr	Trp	Lys	Phe	Ser	Met	Asn	Cys	Thr	
	255				260						265					
ggc	act	gaa	gcg	cat	atc	tcc	agc	tgc	aag	ctg	ggc	cct	tcc	gtg	acc	987
Gly	Thr	Glu	Ala	His	Ile	Ser	Ser	Cys	Lys	Leu	Gly	Pro	Ser	Val	Thr	
270					275					280					285	
cgg	gac	cct	gtg	aag	aac	gcc	acc	tgt	gag	aac	ggg	cag	cca	gct	gtg	1035
Arg	Asp	Pro	Val	Lys	Asn	Ala	Thr	Cys	Glu	Asn	Gly	Gln	Pro	Ala	Val	
			290						295				300			
gtc	agt	tgt	gtg	cct	agc	cag	atc	ttc	agc	ccc	gat	gga	ccc	tca	agg	1083
Val	Ser	Cys	Val	Pro	Ser	Gln	Ile	Phe	Ser	Pro	Asp	Gly	Pro	Ser	Arg	
			305					310					315			
ttc	cgg	aaa	gcc	tac	aag	cca	gag	caa	ccc	ttg	gtg	cgc	ctg	aga	ggc	1131
Phe	Arg	Lys	Ala	Tyr	Lys	Pro	Glu	Gln	Pro	Leu	Val	Arg	Leu	Arg	Gly	
		320					325					330				
gga	gcc	cag	gtc	ggg	gag	ggc	cga	gtg	gag	gtg	ctg	aag	aat	gga	gaa	1179
Gly	Ala	Gln	Val	Gly	Glu	Gly	Arg	Val	Glu	Val	Leu	Lys	Asn	Gly	Glu	
	335					340					345					
tgg	gga	acc	atc	tgc	gat	gac	aag	tgg	gac	ctg	gta	tct	gcc	agt	gtg	1227
Trp	Gly	Thr	Ile	Cys	Asp	Asp	Lys	Trp	Asp	Leu	Val	Ser	Ala	Ser	Val	
350					355					360					365	
gtc	tgc	cga	gag	ctg	ggc	ttt	ggg	acc	gct	aaa	gag	gcc	atc	aca	ggc	1275
Val	Cys	Arg	Glu	Leu	Gly	Phe	Gly	Thr	Ala	Lys	Glu	Ala	Ile	Thr	Gly	
				370					375					380		
tcc	aga	cta	ggg	caa	ggg	att	ggg	ccc	atc	cat	ctc	aat	gaa	gtc	cag	1323

Ser	Arg	Leu	Gly	Gln	Gly	Ile	Gly	Pro	Ile	His	Leu	Asn	Glu	Val	Gln		
			385					390					395				
tgc	aca	ggg	act	gag	aag	tcc	atc	ata	gac	tgc	aaa	ttc	aac	aca	gag	1371	
Cys	Thr	Gly	Thr	Glu	Lys	Ser	Ile	Ile	Asp	Cys	Lys	Phe	Asn	Thr	Glu		
		400					405					410					
tct	caa	ggc	tgc	aac	cat	gaa	gaa	gat	gcc	ggg	gtg	cga	tgc	aac	atc	1419	
Ser	Gln	Gly	Cys	Asn	His	Glu	Glu	Asp	Ala	Gly	Val	Arg	Cys	Asn	Ile		
	415					420					425						
ccc	atc	atg	ggc	ttc	cag	aaa	aag	gtg	cgc	ctg	aat	gga	ggc	cgc	aat	1467	
Pro	Ile	Met	Gly	Phe	Gln	Lys	Lys	Val	Arg	Leu	Asn	Gly	Gly	Arg	Asn		
430					435					440					445		
cct	tat	gag	ggc	cga	gtg	gag	gtg	cta	aca	gag	aga	aat	ggg	tcc	ctt	1515	
Pro	Tyr	Glu	Gly	Arg	Val	Glu	Val	Leu	Thr	Glu	Arg	Asn	Gly	Ser	Leu		
				450					455					460			
gtt	tgg	ggg	act	gta	tgc	ggc	cag	aac	tgg	ggc	att	gtg	gaa	gcc	atg	1563	
Val	Trp	Gly	Thr	Val	Cys	Gly	Gln	Asn	Trp	Gly	Ile	Val	Glu	Ala	Met		
		465						470					475				
gtg	gtc	tgc	cgg	cag	cta	ggc	ctg	ggc	ttt	gcc	agc	aat	gcc	ttt	cag	1611	
Val	Val	Cys	Arg	Gln	Leu	Gly	Leu	Gly	Phe	Ala	Ser	Asn	Ala	Phe	Gln		
		480				485						490					
gag	acc	tgg	tac	tgg	cat	gga	aat	atc	ttc	gcc	aac	aac	gtg	gtc	atg	1659	
Glu	Thr	Trp	Tyr	Trp	His	Gly	Asn	Ile	Phe	Ala	Asn	Asn	Val	Val	Met		
	495					500					505						
agt	gga	gtg	aag	tgc	tca	gga	acg	gag	ctg	tcc	cta	gca	cac	tgc	cgc	1707	
Ser	Gly	Val	Lys	Cys	Ser	Gly	Thr	Glu	Leu	Ser	Leu	Ala	His	Cys	Arg		
510					515					520					525		
cat	gac	gag	gag	gtg	gcc	tgc	ccc	gag	ggc	ggg	gtg	cgg	ttt	ggc	gct	1755	
His	Asp	Glu	Glu	Val	Ala	Cys	Pro	Glu	Gly	Gly	Val	Arg	Phe	Gly	Ala		
				530					535					540			
gga	gtc	gcc	tgc	tcg	gaa	act	gca	cct	gac	ctg	gtg	ctt	aat	gct	gag	1803	
Gly	Val	Ala	Cys	Ser	Glu	Thr	Ala	Pro	Asp	Leu	Val	Leu	Asn	Ala	Glu		
		545						550					555				
att	gtc	cag	cag	act	gcc	tac	ctg	gag	gac	agg	ccc	atg	tcc	ttg	ctg	1851	
Ile	Val	Gln	Gln	Thr	Ala	Tyr	Leu	Glu	Asp	Arg	Pro	Met	Ser	Leu	Leu		
		560					565					570					
cag	tgt	gcc	atg	gag	gag	aac	tgc	ctc	tcc	gcc	tcc	gct	gtg	cac	acc	1899	
Gln	Cys	Ala	Met	Glu	Glu	Asn	Cys	Leu	Ser	Ala	Ser	Ala	Val	His	Thr		
	575					580					585						
gac	ccc	acc	aga	ggc	cac	cgg	cgc	ctt	tta	cgc	ttc	tcc	tcc	cag	atc	1947	
Asp	Pro	Thr	Arg	Gly	His	Arg	Arg	Leu	Leu	Arg	Phe	Ser	Ser	Gln	Ile		
590					595					600					605		
cac	aac	aat	ggc	cag	tct	gac	ttc	cgc	ccc	aag	aat	ggc	cgc	cat	gcg	1995	
His	Asn	Asn	Gly	Gln	Ser	Asp	Phe	Arg	Pro	Lys	Asn	Gly	Arg	His	Ala		
			610					615						620			
tgg	att	tgg	cac	gac	tgc	cac	agg	cac	tac	cac	agc	atg	gaa	gtc	ttc	2043	

Trp	Ile	Trp	His	Asp	Cys	His	Arg	His	Tyr	His	Ser	Met	Glu	Val	Phe	
			625					630					635			
act	tac	tat	gac	ctg	ctg	agc	ctc	aac	ggc	acc	aag	gtg	gct	gag	ggc	2091
Thr	Tyr	Tyr	Asp	Leu	Leu	Ser	Leu	Asn	Gly	Thr	Lys	Val	Ala	Glu	Gly	
		640					645					650				
cac	aag	gcc	agc	ttc	tgc	ctg	gag	gac	act	gag	tgt	gag	gga	gac	att	2139
His	Lys	Ala	Ser	Phe	Cys	Leu	Glu	Asp	Thr	Glu	Cys	Glu	Gly	Asp	Ile	
	655					660					665					
cag	aag	agt	tac	gag	tgt	gcc	aac	ttt	gga	gaa	caa	ggc	atc	acc	atg	2187
Gln	Lys	Ser	Tyr	Glu	Cys	Ala	Asn	Phe	Gly	Glu	Gln	Gly	Ile	Thr	Met	
670					675					680					685	
ggc	tgc	tgg	gac	atg	tac	cgt	cat	gac	att	gac	tgc	cag	tgg	ata	gac	2235
Gly	Cys	Trp	Asp	Met	Tyr	Arg	His	Asp	Ile	Asp	Cys	Gln	Trp	Ile	Asp	
			690						695					700		
atc	acc	gat	gtg	ccc	cct	gga	gac	tac	ctg	ttc	cag	gtt	gtc	att	aac	2283
Ile	Thr	Asp	Val	Pro	Pro	Gly	Asp	Tyr	Leu	Phe	Gln	Val	Val	Ile	Asn	
		705						710					715			
ccc	aac	tat	gaa	gtg	cca	gaa	tca	gat	ttc	tct	aac	aac	atc	atg	aag	2331
Pro	Asn	Tyr	Glu	Val	Pro	Glu	Ser	Asp	Phe	Ser	Asn	Asn	Ile	Met	Lys	
		720					725					730				
tgc	agg	agc	cgc	tat	gat	ggc	tac	cgc	atc	tgg	atg	tac	aac	tgt	cac	2379
Cys	Arg	Ser	Arg	Tyr	Asp	Gly	Tyr	Arg	Ile	Trp	Met	Tyr	Asn	Cys	His	
	735					740					745					
gta	ggt	gga	gcc	ttc	agt	gag	gag	aca	gaa	cag	aag	ttc	gaa	cac	ttc	2427
Val	Gly	Gly	Ala	Phe	Ser	Glu	Glu	Thr	Glu	Gln	Lys	Phe	Glu	His	Phe	
750					755					760					765	
agt	gga	ctt	cta	aat	aac	cag	ctc	tct	gta	cag	taa	agaagatcct				2473
Ser	Gly	Leu	Leu	Asn	Asn	Gln	Leu	Ser	Val	Gln						
			770					775								
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Gln Leu Gln Tyr Pro Glu Tyr Phe Gln Gln Pro Ala Pro Glu His His
 35 40 45

Gln Arg Gln Val Pro Ser Asp Val Val Lys Ile Gln Val Arg Leu Ala
 50 55 60

Gly Gln Lys Arg Lys His Asn Glu Gly Arg Val Glu Val Tyr Tyr Glu
 65 70 75 80

Gly Gln Trp Gly Thr Val Cys Asp Asp Asp Phe Ser Ile His Ala Ala
 85 90 95

His Val Val Cys Arg Gln Val Gly Tyr Val Glu Ala Lys Ser Trp Ala
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Ala Ser Ser Ser Tyr Gly Pro Gly Glu Gly Pro Ile Trp Leu Asp Asn
 115 120 125

Ile Tyr Cys Thr Gly Lys Glu Ser Thr Leu Ala Ser Cys Ser Ser Asn
 130 135 140

Gly Trp Gly Val Thr Asp Cys Lys His Thr Glu Asp Val Gly Val Val
 145 150 155 160

Cys Ser Glu Lys Arg Ile Pro Gly Phe Lys Phe Asp Asn Ser Leu Ile
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Asn Gln Ile Glu Ser Leu Asn Ile Gln Val Glu Asp Ile Arg Ile Arg
 180 185 190

Pro Ile Leu Ser Ala Phe Arg His Arg Lys Pro Val Thr Glu Gly Tyr
 195 200 205

Val Glu Val Lys Glu Gly Lys Ala Trp Lys Gln Ile Cys Asn Lys His

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Trp Thr Ala Lys Asn Ser His Val Val Cys Gly Met Phe Gly Phe Pro 225 230 235 240		
Ala Glu Lys Thr Tyr Asn Pro Lys Ala Tyr Lys Thr Phe Ala Ser Arg 245 250 255		
Arg Lys Leu Arg Tyr Trp Lys Phe Ser Met Asn Cys Thr Gly Thr Glu 260 265 270		
Ala His Ile Ser Ser Cys Lys Leu Gly Pro Ser Val Thr Arg Asp Pro 275 280 285		
Val Lys Asn Ala Thr Cys Glu Asn Gly Gln Pro Ala Val Val Ser Cys 290 295 300		
Val Pro Ser Gln Ile Phe Ser Pro Asp Gly Pro Ser Arg Phe Arg Lys 305 310 315 320		
Ala Tyr Lys Pro Glu Gln Pro Leu Val Arg Leu Arg Gly Gly Ala Gln 325 330 335		
Val Gly Glu Gly Arg Val Glu Val Leu Lys Asn Gly Glu Trp Gly Thr 340 345 350		
Ile Cys Asp Asp Lys Trp Asp Leu Val Ser Ala Ser Val Val Cys Arg 355 360 365		
Glu Leu Gly Phe Gly Thr Ala Lys Glu Ala Ile Thr Gly Ser Arg Leu 370 375 380		
Gly Gln Gly Ile Gly Pro Ile His Leu Asn Glu Val Gln Cys Thr Gly 385 390 395 400		
Thr Glu Lys Ser Ile Ile Asp Cys Lys Phe Asn Thr Glu Ser Gln Gly 405 410 415		
Cys Asn His Glu Glu Asp Ala Gly Val Arg Cys Asn Ile Pro Ile Met 420 425 430		
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Gly Arg Val Glu Val Leu Thr Glu Arg Asn Gly Ser Leu Val Trp Gly		

450	455	460
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Arg Gln Leu Gly Leu Gly Phe Ala Ser Asn Ala Phe Gln Glu Thr Trp 485 490 495		
Tyr Trp His Gly Asn Ile Phe Ala Asn Asn Val Val Met Ser Gly Val 500 505 510		
Lys Cys Ser Gly Thr Glu Leu Ser Leu Ala His Cys Arg His Asp Glu 515 520 525		
Glu Val Ala Cys Pro Glu Gly Gly Val Arg Phe Gly Ala Gly Val Ala 530 535 540		
Cys Ser Glu Thr Ala Pro Asp Leu Val Leu Asn Ala Glu Ile Val Gln 545 550 555 560		
Gln Thr Ala Tyr Leu Glu Asp Arg Pro Met Ser Leu Leu Gln Cys Ala 565 570 575		
Met Glu Glu Asn Cys Leu Ser Ala Ser Ala Val His Thr Asp Pro Thr 580 585 590		
Arg Gly His Arg Arg Leu Leu Arg Phe Ser Ser Gln Ile His Asn Asn 595 600 605		
Gly Gln Ser Asp Phe Arg Pro Lys Asn Gly Arg His Ala Trp Ile Trp 610 615 620		
His Asp Cys His Arg His Tyr His Ser Met Glu Val Phe Thr Tyr Tyr 625 630 635 640		
Asp Leu Leu Ser Leu Asn Gly Thr Lys Val Ala Glu Gly His Lys Ala 645 650 655		
Ser Phe Cys Leu Glu Asp Thr Glu Cys Glu Gly Asp Ile Gln Lys Ser 660 665 670		
Tyr Glu Cys Ala Asn Phe Gly Glu Gln Gly Ile Thr Met Gly Cys Trp 675 680 685		
Asp Met Tyr Arg His Asp Ile Asp Cys Gln Trp Ile Asp Ile Thr Asp		

690	695	700	
Val Pro Pro Gly Asp Tyr Leu Phe Gln Val Val Ile Asn Pro Asn Tyr			
705	710	715	720
Glu Val Pro Glu Ser Asp Phe Ser Asn Asn Ile Met Lys Cys Arg Ser			
	725	730	735
Arg Tyr Asp Gly Tyr Arg Ile Trp Met Tyr Asn Cys His Val Gly Gly			
	740	745	750
Ala Phe Ser Glu Glu Thr Glu Gln Lys Phe Glu His Phe Ser Gly Leu			
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Leu Asn Asn Gln Leu Ser Val Gln			
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	Met Thr Ser Gly Ala Ser His Met Leu		
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Glu Ala Ala Leu Glu Gln Met Asp Gly Ile Ile Ala Gly Thr Lys Thr			
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Ala Ala Asp Phe Ser Asp Gly Thr Cys Glu Pro Gly Leu Ser Pro Pro			
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Ser Thr Cys Leu Asn Ser Met Pro Val Leu His Leu Ile Glu Asp Leu			
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Arg Leu Ala Leu Glu Met Leu Ala Leu Pro Gln Glu Arg Glu Ala Leu			
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Leu Ser Gln Val Pro Gly Pro Thr Ala Thr Tyr Ile Lys Glu Trp Phe			

75	80	85	
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acc tac cag gaa cgc ctg gca cgg cta gaa gga gat aaa gag tcc ctc Thr Tyr Gln Glu Arg Leu Ala Arg Leu Glu Gly Asp Lys Glu Ser Leu 110		115	510
ata cta cag gtg agc gtc ctc aca gat caa gtg gaa gcc caa gga gag Ile Leu Gln Val Ser Val Leu Thr Asp Gln Val Glu Ala Gln Gly Glu 125		130	558
aag att cgg gac ctt gaa gtg tgt ctg gaa ggc cac cag gtg aag ctc Lys Ile Arg Asp Leu Glu Val Cys Leu Glu Gly His Gln Val Lys Leu 140		145	606
aat gct gca gaa gag atg ctt cag cag gag ctg cta agt cgc aca tct Asn Ala Ala Glu Glu Met Leu Gln Gln Glu Leu Leu Ser Arg Thr Ser 155		160	654
ctg gag acc cag aag ttg gat ctg atg act gag gtg tct gag ctg aag Leu Glu Thr Gln Lys Leu Asp Leu Met Thr Glu Val Ser Glu Leu Lys 170		175	702
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cag aga aaa gca gag gag tta ctg caa gag ctt aag cac ctc aaa atc Gln Arg Lys Ala Glu Glu Leu Leu Gln Glu Leu Lys His Leu Lys Ile 205		210	798
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gac acc aag gga cag aaa tgt gat gcc aat gcc ccc ttt gcc cag tgg Asp Thr Lys Gly Gln Lys Cys Asp Ala Asn Ala Pro Phe Ala Gln Trp 540 545 550			1806
agc aca gaa cgc gta tgt aca tgg atg gag gat ttc ggc ctg ggt cag Ser Thr Glu Arg Val Cys Thr Trp Met Glu Asp Phe Gly Leu Gly Gln			1854

555	560	565	
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aca gct acc cct cag gac atg gaa aag gag cta ggg att aaa cac ccc Thr Ala Thr Pro Gln Asp Met Glu Lys Glu Leu Gly Ile Lys His Pro 590 595 600			1950
ctc cac agg aag aag ctg gtt tta gca gtg aaa gct atc aac gcc aag Leu His Arg Lys Lys Leu Val Leu Ala Val Lys Ala Ile Asn Ala Lys 605 610 615			1998
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gcc ctg att ggt cct gag gct gaa cag gaa aag cga gac aaa atg gcc Ala Leu Ile Gly Pro Glu Ala Glu Gln Glu Lys Arg Asp Lys Met Ala 780 785 790			2526
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795	800	805	
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Lys Leu Gly Phe Ser His Phe Gly Asn Met Arg Lys Lys Lys Phe Asp			
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gaa tct aca gat tac att tgc ccc atg gag cct gga gat gct gtc agt			2670
Glu Ser Thr Asp Tyr Ile Cys Pro Met Glu Pro Gly Asp Ala Val Ser			
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Asp Ser His Arg Val Tyr Gly Val Tyr Arg Gly Leu Ser Pro Leu Asp			
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Asn His Glu Leu Asp Gly Leu Asp Gln Val Gly Gln Ile Ser			
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Thr Cys Glu Pro Gly Leu Ser Pro Pro Ser Thr Cys Leu Asn Ser Met			
	35	40	45
Pro Val Leu His Leu Ile Glu Asp Leu Arg Leu Ala Leu Glu Met Leu			
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Thr Ala Thr Tyr Ile Lys Glu Trp Phe Glu Asp Ser Leu Ser Gln Val
 85 90 95

Asn His His Gly Ala Ala Ser Asn Glu Thr Tyr Gln Glu Arg Leu Ala
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Arg Leu Glu Gly Asp Lys Glu Ser Leu Ile Leu Gln Val Ser Val Leu
 115 120 125

Thr Asp Gln Val Glu Ala Gln Gly Glu Lys Ile Arg Asp Leu Glu Val
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Cys Leu Glu Gly His Gln Val Lys Leu Asn Ala Ala Glu Glu Met Leu
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Gln Gln Glu Leu Leu Ser Arg Thr Ser Leu Glu Thr Gln Lys Leu Asp
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Leu Met Thr Glu Val Ser Glu Leu Lys Leu Lys Leu Val Gly Met Glu
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Lys Glu Gln Lys Glu Gln Glu Glu Lys Gln Arg Lys Ala Glu Glu Leu
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Leu Gln Glu Leu Lys His Leu Lys Ile Lys Val Glu Glu Leu Glu Asn
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Ala Gln Leu Gln Glu Gln Val Ala Leu Lys Asp Ala Glu Ile Glu Arg
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Leu His Ser Gln Leu Ser Arg Ser Ala Ala Leu His Ser Asp His Ala
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Glu Arg Asp Gln Glu Ile His Arg Leu Lys Met Gly Met Glu Thr Leu
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Leu Val Ala Asn Glu Asp Lys Asp Arg Arg Ile Glu Glu Leu Thr Gly
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Leu Leu Asn Lys Tyr Leu Arg Val Lys Glu Ile Val Met Ala Thr Gln
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Gly Pro Ser Glu Arg Thr Leu Ser Ile Asn Glu Asp Glu Ile Glu Gly
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Ser Phe Arg Lys Trp Asn Thr Thr Asn Lys Ser Pro Glu Glu Val Pro
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Lys Gln Glu Ile Ser Pro Arg Cys Ser Ser Pro Thr Pro Gly Pro Pro
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Cys Ser Leu Glu Asp Leu Arg Arg Glu Ser Gly Asp Lys Cys Val Asp
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Pro Asn Gly Glu Ala Ala Lys Ser Pro Pro Thr Ala Ser Leu Gln Pro
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Leu Asp His Ile Trp Val Thr Arg Trp Leu Asp Asp Ile Gly Leu Pro
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Gln Tyr Lys Asp Gln Phe His Glu Ser Arg Val Asp Gly Arg Met Leu
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Gln Tyr Leu Thr Val Asn Asp Leu Leu Phe Leu Lys Val Thr Ser Gln
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Leu His His Leu Ser Ile Lys Cys Ala Ile His Val Leu His Val Asn
 675 680 685

Lys Phe Asn Pro Asn Cys Leu His Arg Arg Pro Ala Asp Glu Ser Asn
 690 695 700

Leu Ser Pro Ser Glu Val Val Gln Trp Ser Asn His Arg Val Met Glu
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Trp Leu Arg Ser Val Asp Leu Ala Glu Tyr Ala Pro Asn Leu Arg Gly
 725 730 735

Ser Gly Val His Gly Gly Leu Ile Ile Leu Glu Pro Arg Phe Thr Gly
 740 745 750

Asp Thr Leu Ala Met Leu Leu Asn Ile Pro Pro Gln Lys Thr Leu Leu
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Arg Arg His Leu Thr Thr Lys Phe Asn Ala Leu Ile Gly Pro Glu Ala
 770 775 780

Glu Gln Glu Lys Arg Asp Lys Met Ala Ser Pro Ala Tyr Thr Pro Leu
785 790 795 800

Thr Thr Thr Ala Lys Val Arg Pro Arg Lys Leu Gly Phe Ser His Phe
805 810 815

Gly Asn Met Arg Lys Lys Lys Phe Asp Glu Ser Thr Asp Tyr Ile Cys
820 825 830

Pro Met Glu Pro Gly Asp Ala Val Ser Asp Ser His Arg Val Tyr Gly
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Met
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Arg Trp Leu Leu Pro Trp Thr Leu Ala Ala Val Ala Val Leu Arg Val
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Gly Asn Ile Leu Ala Thr Ala Leu Ser Pro Thr Pro Thr Thr Met Thr
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ttc acc cca gca cca cta gag gaa acg act aca cgc ccc gaa ttc tgc 320
Phe Thr Pro Ala Pro Leu Glu Glu Thr Thr Thr Arg Pro Glu Phe Cys
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aag tgg cca tgt gag tgc cca caa tcc cca cct cgc tgc cca ctg ggc 368
Lys Trp Pro Cys Glu Cys Pro Gln Ser Pro Pro Arg Cys Pro Leu Gly
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gtc agc cta atc aca gat ggc tgt gaa tgc tgt aag ata tgt gcc cag 416

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Gln	Leu	Gly	Asp	Asn	Cys	Thr	Glu	Ala	Ala	Ile	Cys	Asp	Pro	His	Arg		
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ggc	ctc	tac	tgc	gat	tac	agt	ggg	gat	cgc	ccg	agg	tac	gca	ata	gga	512	
Gly	Leu	Tyr	Cys	Asp	Tyr	Ser	Gly	Asp	Arg	Pro	Arg	Tyr	Ala	Ile	Gly		
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Asn	Ala	Arg	Cys	Trp	Pro	Glu	Gln	Glu	Ser	Arg	Leu	Cys	Asn	Leu	Arg		
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Pro	Cys	Asp	Val	Asp	Ile	Gln	Leu	His	Ile	Lys	Ala	Gly	Lys	Lys	Cys		
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Cys	Val	Ser	Thr	Arg	Thr	Tyr	Arg	Pro	Lys	Tyr	Cys	Gly	Val	Cys	Thr		
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Phe	Gln	Cys	Pro	Glu	Gly	Pro	Gly	Phe	Ser	Arg	Gln	Val	Leu	Trp	Ile	
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Asn	Ala	Cys	Phe	Cys	Asn	Leu	Ser	Cys	Arg	Asn	Pro	Asn	Asp	Ile	Phe	
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<400> 22

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Thr Phe Thr Pro Ala Pro Leu Glu Glu Thr Thr Thr Arg Pro Glu Phe
 35 40 45

Cys Lys Trp Pro Cys Glu Cys Pro Gln Ser Pro Pro Arg Cys Pro Leu
 50 55 60

Gly Val Ser Leu Ile Thr Asp Gly Cys Glu Cys Cys Lys Ile Cys Ala
 65 70 75 80

Gln Gln Leu Gly Asp Asn Cys Thr Glu Ala Ala Ile Cys Asp Pro His
 85 90 95

Arg Gly Leu Tyr Cys Asp Tyr Ser Gly Asp Arg Pro Arg Tyr Ala Ile
 100 105 110

Gly Val Cys Ala Gln Val Val Gly Val Gly Cys Val Leu Asp Gly Val
 115 120 125

Arg Tyr Thr Asn Gly Glu Ser Phe Gln Pro Asn Cys Arg Tyr Asn Cys
 130 135 140

Thr Cys Ile Asp Gly Thr Val Gly Cys Thr Pro Leu Cys Leu Ser Pro
 145 150 155 160

Arg Pro Pro Arg Leu Trp Cys Arg Gln Pro Arg His Val Arg Val Pro
 165 170 175

Gly Gln Cys Cys Glu Gln Trp Val Cys Asp Asp Asp Ala Arg Arg Pro
 180 185 190

Arg Gln Thr Ala Leu Leu Asp Thr Arg Ala Phe Ala Ala Ser Gly Ala
 195 200 205

Val Glu Gln Arg Tyr Glu Asn Cys Ile Ala Tyr Thr Ser Pro Trp Ser
 210 215 220

Pro Cys Ser Thr Thr Cys Gly Leu Gly Ile Ser Thr Arg Ile Ser Asn
 225 230 235 240

Val Asn Ala Arg Cys Trp Pro Glu Gln Glu Ser Arg Leu Cys Asn Leu
 245 250 255

Arg Pro Cys Asp Val Asp Ile Gln Leu His Ile Lys Ala Gly Lys Lys
 260 265 270

Cys Leu Ala Val Tyr Gln Pro Glu Glu Ala Thr Asn Phe Thr Leu Ala
 275 280 285

Gly Cys Val Ser Thr Arg Thr Tyr Arg Pro Lys Tyr Cys Gly Val Cys
 290 295 300

Thr Asp Asn Arg Cys Cys Ile Pro Tyr Lys Ser Lys Thr Ile Ser Val
 305 310 315 320

Asp Phe Gln Cys Pro Glu Gly Pro Gly Phe Ser Arg Gln Val Leu Trp
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Ile Asn Ala Cys Phe Cys Asn Leu Ser Cys Arg Asn Pro Asn Asp Ile
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Phe Ala Asp Leu Glu Ser Tyr Pro Asp Phe Glu Glu Ile Ala Asn
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 tctggatgtc tgagaag atg ctg gtc atg aag ctg ttc act tgc ttc tta 350
 Met Leu Val Met Lys Leu Phe Thr Cys Phe Leu
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 cag gtc cta gct ggg ttg gct gtg cat tcc cag ggg gcc ctg tct gct 398
 Gln Val Leu Ala Gly Leu Ala Val His Ser Gln Gly Ala Leu Ser Ala
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 ggg aac aac tca aca gaa gtg gaa gtg gtg cct ttc aac gaa gtg tgg 446
 Gly Asn Asn Ser Thr Glu Val Glu Val Val Pro Phe Asn Glu Val Trp
 30 35 40
 ggt cgc agc tac tgt cgg ccc atg gag aag ctg gtg tac atc ttg gat 494
 Gly Arg Ser Tyr Cys Arg Pro Met Glu Lys Leu Val Tyr Ile Leu Asp
 45 50 55
 gaa tac cct gat gag gtg tct cac ata ttc agt ccg tcc tgt gtc ctt 542
 Glu Tyr Pro Asp Glu Val Ser His Ile Phe Ser Pro Ser Cys Val Leu
 60 65 70 75
 ctg agt cgc tgt agt ggc tgc tgt ggt gat gaa ggt ctg cac tgt gtg 590
 Leu Ser Arg Cys Ser Gly Cys Cys Gly Asp Glu Gly Leu His Cys Val
 80 85 90
 ccg ata aag aca gcc aac atc act atg cag atc ttg aag att ccc ccc 638
 Pro Ile Lys Thr Ala Asn Ile Thr Met Gln Ile Leu Lys Ile Pro Pro
 95 100 105
 aat cgg gat cca cat ttc tat gtg gag atg aca ttt tct cag gat gtg 686
 Asn Arg Asp Pro His Phe Tyr Val Glu Met Thr Phe Ser Gln Asp Val
 110 115 120
 ctc tgt gaa tgc aga cct att ctg gag acg aca aag gca gaa agg agg 734
 Leu Cys Glu Cys Arg Pro Ile Leu Glu Thr Thr Lys Ala Glu Arg Arg
 125 130 135
 aaa acc aag ggg aag agg aag agg agt aga aac tca cag act gag gaa 782
 Lys Thr Lys Gly Lys Arg Lys Arg Ser Arg Asn Ser Gln Thr Glu Glu

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Pro His Pro				

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accctctatt tattagccga ctcgctccctg ctgaatgacg tgccccctcc aagataaggg	954
gcatggaagg acaagacgct caggaattca gtgccttaaa acagaacgag agagaaagaa	1014
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			20					25					30		

Glu	Val	Glu	Val	Val	Pro	Phe	Asn	Glu	Val	Trp	Gly	Arg	Ser	Tyr	Cys
		35					40					45			

Arg	Pro	Met	Glu	Lys	Leu	Val	Tyr	Ile	Leu	Asp	Glu	Tyr	Pro	Asp	Glu
	50					55					60				

Val	Ser	His	Ile	Phe	Ser	Pro	Ser	Cys	Val	Leu	Leu	Ser	Arg	Cys	Ser
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Gly Cys Cys Gly Asp Glu Gly Leu His Cys Val Pro Ile Lys Thr Ala
85 90 95

Asn Ile Thr Met Gln Ile Leu Lys Ile Pro Pro Asn Arg Asp Pro His
100 105 110

Phe Tyr Val Glu Met Thr Phe Ser Gln Asp Val Leu Cys Glu Cys Arg
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accaaacagt tatctgtcaa gtaacaagca tttaatgaca ga atg gct cac ctt 234
Met Ala His Leu
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aag cga cta gta aaa ttg cac att aaa aga cat tac cac aga aag ttc 282
Lys Arg Leu Val Lys Leu His Ile Lys Arg His Tyr His Arg Lys Phe
5 10 15 20
tgg aag ctg ggt gca gtc atc ttt ttc ttt tta gta gtt ctg att tta 330
Trp Lys Leu Gly Ala Val Ile Phe Phe Phe Leu Val Val Leu Ile Leu
25 30 35
atg caa aga gaa gta agt gtt cag tat tcc aag gag gaa tca aag atg 378
Met Gln Arg Glu Val Ser Val Gln Tyr Ser Lys Glu Glu Ser Lys Met
40 45 50
gag agg aac ttg aaa aac aaa aac aaa atg ttg gat ttt atg ctc gaa 426
Glu Arg Asn Leu Lys Asn Lys Asn Lys Met Leu Asp Phe Met Leu Glu
55 60 65
gct gta aat aat att aaa gat gca atg cca aag atg caa ata gga gcg 474
Ala Val Asn Asn Ile Lys Asp Ala Met Pro Lys Met Gln Ile Gly Ala
70 75 80

ccc att aag gag aat atc gac gtc cgc gag aga ccc tgt ctg caa ggg	522
Pro Ile Lys Glu Asn Ile Asp Val Arg Glu Arg Pro Cys Leu Gln Gly	
85 90 95 100	
tac tac aca gcc gcg gag ttg aag ccg gtt ttt gat cgc cca cct cag	570
Tyr Tyr Thr Ala Ala Glu Leu Lys Pro Val Phe Asp Arg Pro Pro Gln	
105 110 115	
gat tct aac gca cct ggt gct tct ggc aag ccg ttt aag atc acc cac	618
Asp Ser Asn Ala Pro Gly Ala Ser Gly Lys Pro Phe Lys Ile Thr His	
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ctc agc ccg gag gag cag aag gag aaa gag cga ggg gaa acg aag cac	666
Leu Ser Pro Glu Glu Gln Lys Glu Lys Glu Arg Gly Glu Thr Lys His	
135 140 145	
tgc ttc aac gcc ttt gca agt gac aga att tct ctg cac cgg gac ctt	714
Cys Phe Asn Ala Phe Ala Ser Asp Arg Ile Ser Leu His Arg Asp Leu	
150 155 160	
ggg cct gac acc cga cca cct gaa tgt att gaa caa aaa ttt aag cgc	762
Gly Pro Asp Thr Arg Pro Pro Glu Cys Ile Glu Gln Lys Phe Lys Arg	
165 170 175 180	
tgc ccg ccc ctg cct acc acc agt gtc ata ata gtc ttt cac aat gaa	810
Cys Pro Pro Leu Pro Thr Thr Ser Val Ile Ile Val Phe His Asn Glu	
185 190 195	
gca tgg tcc acg ctg ctt agg acc gtc cac agt gtg ctc tat tct tca	858
Ala Trp Ser Thr Leu Leu Arg Thr Val His Ser Val Leu Tyr Ser Ser	
200 205 210	
cct gcc ata ctg ctg aag gag atc att ttg gtg gat gat gct agt gta	906
Pro Ala Ile Leu Leu Lys Glu Ile Ile Leu Val Asp Asp Ala Ser Val	
215 220 225	
gac gac tac ctg cat gaa aag ctg gag gaa tac ata aaa cag ttt tct	954
Asp Asp Tyr Leu His Glu Lys Leu Glu Glu Tyr Ile Lys Gln Phe Ser	
230 235 240	
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Ile Val Lys Ile Val Arg Gln Gln Glu Arg Lys Gly Leu Ile Thr Ala	
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Arg Leu Leu Gly Ala Ala Val Ala Thr Ala Glu Thr Leu Thr Phe Leu	
265 270 275	
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Asp Ala His Cys Glu Cys Phe Tyr Gly Trp Leu Glu Pro Leu Leu Ala	
280 285 290	
agg ata gct gag aac tac act gcc gtg gtg agt cca gac atc gca tcc	1146
Arg Ile Ala Glu Asn Tyr Thr Ala Val Val Ser Pro Asp Ile Ala Ser	
295 300 305	
ata gat cta aac aca ttt gaa ttc aac aag cct tct ccg tac gga agc	1194
Ile Asp Leu Asn Thr Phe Glu Phe Asn Lys Pro Ser Pro Tyr Gly Ser	
310 315 320	

aac cat aac cgt gga aat ttt gac tgg agc ctt tcc ttt ggc tgg gag	1242
Asn His Asn Arg Gly Asn Phe Asp Trp Ser Leu Ser Phe Gly Trp Glu	
325 330 335 340	
tca ctt cct gat cat gag aag caa aga agg aaa gat gaa acc tac cca	1290
Ser Leu Pro Asp His Glu Lys Gln Arg Arg Lys Asp Glu Thr Tyr Pro	
345 350 355	
att aag acc ccc acc ttt gca gga ggc ctt ttt tct ata tct aaa aaa	1338
Ile Lys Thr Pro Thr Phe Ala Gly Gly Leu Phe Ser Ile Ser Lys Lys	
360 365 370	
tat ttt gag cac att gga agt tac gat gaa gaa atg gaa atc tgg gga	1386
Tyr Phe Glu His Ile Gly Ser Tyr Asp Glu Glu Met Glu Ile Trp Gly	
375 380 385	
ggt gaa aat ata gaa atg tca ttc cga gtg tgg caa tgt ggt ggg cag	1434
Gly Glu Asn Ile Glu Met Ser Phe Arg Val Trp Gln Cys Gly Gly Gln	
390 395 400	
ttg gag att atg cct tgc tct gtt gtt gga cat gtt ttt cgc agc aaa	1482
Leu Glu Ile Met Pro Cys Ser Val Val Gly His Val Phe Arg Ser Lys	
405 410 415 420	
agc cct cat acc ttc cca aaa ggc acg cag gtg att gct cgt aac caa	1530
Ser Pro His Thr Phe Pro Lys Gly Thr Gln Val Ile Ala Arg Asn Gln	
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Val Arg Leu Ala Glu Val Trp Met Asp Glu Tyr Lys Glu Ile Phe Tyr	
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Arg Arg Asn Thr Asp Ala Ala Lys Ile Val Lys Gln Lys Ser Phe Gly	
455 460 465	
gat ctt tcc aaa aga ttt gaa ata aag aaa cgc ctt cag tgt aaa aat	1674
Asp Leu Ser Lys Arg Phe Glu Ile Lys Lys Arg Leu Gln Cys Lys Asn	
470 475 480	
ttt acc tgg tac ctg aac act att tac ccg gaa gcg tat gtg cca gac	1722
Phe Thr Trp Tyr Leu Asn Thr Ile Tyr Pro Glu Ala Tyr Val Pro Asp	
485 490 495 500	
ctt aat cct gtt ata tct gga tat att aag agt gtg ggt caa cct tta	1770
Leu Asn Pro Val Ile Ser Gly Tyr Ile Lys Ser Val Gly Gln Pro Leu	
505 510 515	
tgt ctg gat gtt ggt gag aat aac cag gga ggc aaa cca ttg att ctg	1818
Cys Leu Asp Val Gly Glu Asn Asn Gln Gly Gly Lys Pro Leu Ile Leu	
520 525 530	
tac acg tgc cac ggc ctc ggg gga aat cag tac ttc gag tat tct gct	1866
Tyr Thr Cys His Gly Leu Gly Gly Asn Gln Tyr Phe Glu Tyr Ser Ala	
535 540 545	
cag cgt gaa atc cgg cac aac atc cag aag gag ctg tgt ctt cat gct	1914
Gln Arg Glu Ile Arg His Asn Ile Gln Lys Glu Leu Cys Leu His Ala	
550 555 560	

act cag ggt gtc gtc cag ctg aag gca tgt gtc tat aaa ggt cac agg	1962
Thr Gln Gly Val Val Gln Leu Lys Ala Cys Val Tyr Lys Gly His Arg	
565 570 575 580	
acc atc gcc cct gga gaa cag ata tgg gag att cgg aag gac caa ctt	2010
Thr Ile Ala Pro Gly Glu Gln Ile Trp Glu Ile Arg Lys Asp Gln Leu	
585 590 595	
cta tat aat cca tta ttt aaa atg tgc ctt tca tca aat gga gag cat	2058
Leu Tyr Asn Pro Leu Phe Lys Met Cys Leu Ser Ser Asn Gly Glu His	
600 605 610	
cca aac tta gtg cca tgt gac gca aca gat cta ctc caa aaa tgg att	2106
Pro Asn Leu Val Pro Cys Asp Ala Thr Asp Leu Leu Gln Lys Trp Ile	
615 620 625	
ttt agc caa aat gaa taa gtgttcctta aaattaagga gttgaaaagg	2154
Phe Ser Gln Asn Glu	
630	
acatactctt cctcataaaa ctgtgactag gcatacactg tagttgttga aaattatgca	2214
aaagcagcta attgtaactt attccaagtg catttcctta tttatatctt aagatgtcta	2274
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aaaaa	2879

<210> 26
 <211> 633
 <212> PRT
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<400> 26

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His Arg Lys Phe Trp Lys Leu Gly Ala Val Ile Phe Phe Phe Leu Val

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Val	Leu	Ile	Leu	Met	Gln	Arg	Glu	Val	Ser	Val	Gln	Tyr	Ser	Lys	Glu															
		35					40					45																		
Glu	Ser	Lys	Met	Glu	Arg	Asn	Leu	Lys	Asn	Lys	Asn	Lys	Met	Leu	Asp															
	50					55					60																			
Phe	Met	Leu	Glu	Ala	Val	Asn	Asn	Ile	Lys	Asp	Ala	Met	Pro	Lys	Met															
65					70					75					80															
Gln	Ile	Gly	Ala	Pro	Ile	Lys	Glu	Asn	Ile	Asp	Val	Arg	Glu	Arg	Pro															
				85					90					95																
Cys	Leu	Gln	Gly	Tyr	Tyr	Thr	Ala	Ala	Glu	Leu	Lys	Pro	Val	Phe	Asp															
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Arg	Pro	Pro	Gln	Asp	Ser	Asn	Ala	Pro	Gly	Ala	Ser	Gly	Lys	Pro	Phe															
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Val Gly Met Lys Ala Ala Leu Gln Val Ser Met Asn Asp Gly Leu Ser
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Phe Ile Ser Ser Ser Val Ile Ile Thr Thr Thr His Cys Ser Asp Gly
 305 310 315 320

Ser Ile Leu Ala Ile Ala Leu Leu Ile Leu Phe Leu Leu Leu Ala Leu
 325 330 335

Ala Leu Leu Trp Trp Phe Trp Pro Leu Cys Cys Thr Val Ile Ile Lys
 340 345 350

Glu Val Pro Pro Pro Pro Ala Glu Glu Ser Glu Glu Glu Asp Asp Asp
 355 360 365

Gly Leu Pro Lys Lys Lys Trp Pro Thr Val Asp Ala Ser Tyr Tyr Gly
 370 375 380

Gly Arg Gly Val Gly Gly Ile Lys Arg Met Glu Val Arg Trp Gly Glu
 385 390 395 400

Lys Gly Ser Thr Glu Glu Gly Ala Lys Leu Glu Lys Ala Lys Asn Ala
 405 410 415

Arg Val Lys Met Pro Glu Gln Glu Tyr Glu Phe Pro Glu Pro Arg Asn
 420 425 430

Leu Asn Asn Asn Met Arg Arg Pro Ser Ser Pro Arg Lys Trp Tyr Ser
 435 440 445

Pro Ile Lys Gly Lys Leu Asp Ala Leu Trp Val Leu Leu Arg Lys Gly
 450 455 460

Tyr Asp Arg Val Ser Val Met Arg Pro Gln Pro Gly Asp Thr Gly Arg
 465 470 475 480

Cys Ile Asn Phe Thr Arg Val Lys Asn Asn Gln Pro Ala Lys Tyr Pro
 485 490 495

Leu Asn Asn Ala Tyr His Thr Ser Ser Pro Pro Pro Ala Pro Ile Tyr
 500 505 510

Thr Pro Pro Pro Pro Ala Pro His Cys Pro Pro Pro Pro Pro Ser Ala
 515 520 525

Pro Thr Pro Pro Ile Pro Ser Pro Pro Ser Thr Leu Pro Pro Pro Pro
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Gln Ala Pro Pro Pro Asn Arg Ala Pro Pro Pro Ser Arg Pro Pro Pro
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Arg Pro Ser Val

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aggctcaaag ctggctctgc aggggac atg aga ggc aca ccg aag acc cac ctc 174
Met Arg Gly Thr Pro Lys Thr His Leu
1 5
ctg gcc ttc tcc ctc ctc tgc ctc ctc tca aag gtg cgt acc cag ctg 222
Leu Ala Phe Ser Leu Leu Cys Leu Leu Ser Lys Val Arg Thr Gln Leu
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tgc ccg aca cca tgt acc tgc ccc tgg cca cct ccc cga tgc ccg ctg 270
Cys Pro Thr Pro Cys Thr Cys Pro Trp Pro Pro Pro Arg Cys Pro Leu
30 35 40
gga gta ccc ctg gtg ctg gat ggc tgt ggc tgc tgc cgg gta tgt gca 318
Gly Val Pro Leu Val Leu Asp Gly Cys Gly Cys Cys Arg Val Cys Ala
45 50 55
cgg cgg ctg ggg gag ccc tgc gac caa ctc cac gtc tgc gac gcc agc 366
Arg Arg Leu Gly Glu Pro Cys Asp Gln Leu His Val Cys Asp Ala Ser
60 65 70
cag ggc ctg gtc tgc cag ccc ggg gca gga ccc ggt ggc cgg ggg gcc 414
Gln Gly Leu Val Cys Gln Pro Gly Ala Gly Pro Gly Gly Arg Gly Ala
75 80 85
ctg tgc ctc ttg gca gag gac gac agc agc tgt gag gtg aac ggc cgc 462
Leu Cys Leu Leu Ala Glu Asp Asp Ser Ser Cys Glu Val Asn Gly Arg
90 95 100 105
ctg tat cgg gaa ggg gag acc ttc cag ccc cac tgc agc atc cgc tgc 510
Leu Tyr Arg Glu Gly Glu Thr Phe Gln Pro His Cys Ser Ile Arg Cys
110 115 120
cgc tgc gag gac ggc ggc ttc acc tgc gtg ccg ctg tgc agc gag gat 558
Arg Cys Glu Asp Gly Gly Phe Thr Cys Val Pro Leu Cys Ser Glu Asp
125 130 135
gtg cgg ctg ccc agc tgg gac tgc ccc cac ccc agg agg gtc gag gtc 606
Val Arg Leu Pro Ser Trp Asp Cys Pro His Pro Arg Arg Val Glu Val
140 145 150
ctg ggc aag tgc tgc cct gag tgg gtg tgc ggc caa gga ggg gga ctg 654
Leu Gly Lys Cys Cys Pro Glu Trp Val Cys Gly Gln Gly Gly Gly Leu
155 160 165
ggg acc cag ccc ctt cca gcc caa gga ccc cag ttt tct ggc ctt gtc 702
Gly Thr Gln Pro Leu Pro Ala Gln Gly Pro Gln Phe Ser Gly Leu Val
170 175 180 185
tct tcc ctg ccc cct ggt gtc ccc tgc cca gaa tgg agc acg gcc tgg 750
Ser Ser Leu Pro Pro Gly Val Pro Cys Pro Glu Trp Ser Thr Ala Trp
190 195 200
gga ccc tgc tcg acc acc tgt ggg ctg ggc atg gcc acc cgg gtg tcc 798
Gly Pro Cys Ser Thr Thr Cys Gly Leu Gly Met Ala Thr Arg Val Ser
205 210 215

aac cag aac cgc ttc tgc cga ctg gag acc cag cgc cgc ctg tgc ctg	846
Asn Gln Asn Arg Phe Cys Arg Leu Glu Thr Gln Arg Arg Leu Cys Leu	
220 225 230	
tcc agg ccc tgc cca ccc tcc agg ggt cgc agt cca caa aac agt gcc	894
Ser Arg Pro Cys Pro Pro Ser Arg Gly Arg Ser Pro Gln Asn Ser Ala	
235 240 245	
ttc tag agccgggctg ggaatgggga cacggtgtcc accatcccca gctggtggcc	950
Phe	
250	
ctgtgcctgg gccctgggct gatggaagat ggtccgtgcc caggcccttg gctgcaggca	1010
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ggaggctggc caaggtgtcc agggctctct agcccactcc ctgcctacac acacagccta	1190
tatcaaacat gcacacgggc gagctttctc tccgacttcc cctgggcaag agatgggaca	1250
agcagtcctt taatattgag gctgcagcag gtgctgggct ggactggcca tttttctggg	1310
ggtaggatga agagaaggca cacagagatt ctggatctcc tgctgccttt tctggagttt	1370
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aaa	1433

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<400> 30

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Leu Leu Ser Lys Val Arg Thr Gln Leu Cys Pro Thr Pro Cys Thr Cys
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Pro Trp Pro Pro Pro Arg Cys Pro Leu Gly Val Pro Leu Val Leu Asp
35 40 45

Gly Cys Gly Cys Cys Arg Val Cys Ala Arg Arg Leu Gly Glu Pro Cys
50 55 60

Asp Gln Leu His Val Cys Asp Ala Ser Gln Gly Leu Val Cys Gln Pro
65 70 75 80

Gly Ala Gly Pro Gly Gly Arg Gly Ala Leu Cys Leu Leu Ala Glu Asp

85								90				95			
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			100					105					110		
Phe	Gln	Pro	His	Cys	Ser	Ile	Arg	Cys	Arg	Cys	Glu	Asp	Gly	Gly	Phe
		115					120					125			
Thr	Cys	Val	Pro	Leu	Cys	Ser	Glu	Asp	Val	Arg	Leu	Pro	Ser	Trp	Asp
	130					135					140				
Cys	Pro	His	Pro	Arg	Arg	Val	Glu	Val	Leu	Gly	Lys	Cys	Cys	Pro	Glu
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Trp	Val	Cys	Gly	Gln	Gly	Gly	Gly	Leu	Gly	Thr	Gln	Pro	Leu	Pro	Ala
				165					170						175
Gln	Gly	Pro	Gln	Phe	Ser	Gly	Leu	Val	Ser	Ser	Leu	Pro	Pro	Gly	Val
			180					185					190		
Pro	Cys	Pro	Glu	Trp	Ser	Thr	Ala	Trp	Gly	Pro	Cys	Ser	Thr	Thr	Cys
		195					200					205			
Gly	Leu	Gly	Met	Ala	Thr	Arg	Val	Ser	Asn	Gln	Asn	Arg	Phe	Cys	Arg
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Leu	Glu	Thr	Gln	Arg	Arg	Leu	Cys	Leu	Ser	Arg	Pro	Cys	Pro	Pro	Ser
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Arg	Gly	Arg	Ser	Pro	Gln	Asn	Ser	Ala	Phe						
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 Ala Asp Ala Gly Ile Arg Arg Val Val Pro Ser Asp Leu Tyr Pro Leu

5					10					15						
gtg	ctc	ggc	ttc	ctg	cgc	gat	aac	caa	ctc	tca	gag	gtg	gcc	aat	aag	153
Val	Leu	Gly	Phe	Leu	Arg	Asp	Asn	Gln	Leu	Ser	Glu	Val	Ala	Asn	Lys	
		20					25					30				
ttc	gcc	aaa	gcg	aca	gga	gct	aca	cag	cag	gat	gcc	aat	gcc	tct	tcc	201
Phe	Ala	Lys	Ala	Thr	Gly	Ala	Thr	Gln	Gln	Asp	Ala	Asn	Ala	Ser	Ser	
	35					40					45					
ctc	tta	gac	atc	tat	agc	ttc	tgg	ctc	aag	tct	gcc	aag	gtc	cca	gag	249
Leu	Leu	Asp	Ile	Tyr	Ser	Phe	Trp	Leu	Lys	Ser	Ala	Lys	Val	Pro	Glu	
50					55					60					65	
cga	aag	tta	cag	gca	aat	gga	cca	gtg	gct	aag	aaa	gct	aag	aag	aag	297
Arg	Lys	Leu	Gln	Ala	Asn	Gly	Pro	Val	Ala	Lys	Lys	Ala	Lys	Lys	Lys	
			70					75						80		
gcc	tca	tcc	agt	gac	agt	gag	gac	agc	agc	gag	gag	gag	gag	gaa	gtt	345
Ala	Ser	Ser	Ser	Asp	Ser	Glu	Asp	Ser	Ser	Glu	Glu	Glu	Glu	Glu	Val	
			85					90					95			
caa	ggg	cct	cca	gca	aag	aag	gct	gct	gta	cct	gcc	aag	cga	gtc	ggt	393
Gln	Gly	Pro	Pro	Ala	Lys	Lys	Ala	Ala	Val	Pro	Ala	Lys	Arg	Val	Gly	
		100					105					110				
ctg	cct	cct	ggg	aag	gct	gca	gcc	aaa	gca	tca	gag	agt	agc	agc	agt	441
Leu	Pro	Pro	Gly	Lys	Ala	Ala	Ala	Lys	Ala	Ser	Glu	Ser	Ser	Ser	Ser	
	115					120					125					
gaa	gag	tcc	aga	gat	gat	gat	gat	gag	gag	gac	caa	aag	aaa	cag	cct	489
Glu	Glu	Ser	Arg	Asp	Asp	Asp	Asp	Glu	Glu	Asp	Gln	Lys	Lys	Gln	Pro	
130					135					140					145	
gtc	cag	aag	gga	gtt	aag	ccc	caa	gcc	aag	gca	gcc	aaa	gct	cct	cct	537
Val	Gln	Lys	Gly	Val	Lys	Pro	Gln	Ala	Lys	Ala	Ala	Lys	Ala	Pro	Pro	
				150				155						160		
aag	aag	gcc	aag	agc	tct	gat	tct	gat	tct	gac	tca	agc	tcc	gag	gat	585
Lys	Lys	Ala	Lys	Ser	Ser	Asp	Ser	Asp	Ser	Asp	Ser	Ser	Ser	Ser	Asp	
			165					170						175		
gag	cca	cca	aag	aac	cag	aag	cca	aag	ata	aca	cct	gtg	aca	gtt	aaa	633
Glu	Pro	Pro	Lys	Asn	Gln	Lys	Pro	Lys	Ile	Thr	Pro	Val	Thr	Val	Lys	
		180					185					190				
gct	cag	act	aaa	gcc	cct	ccc	aaa	cca	gct	cga	gca	gca	cct	aaa	ata	681
Ala	Gln	Thr	Lys	Ala	Pro	Pro	Lys	Pro	Ala	Arg	Ala	Ala	Pro	Lys	Ile	
	195					200					205					
gcc	aat	ggt	aaa	gca	gcc	agt	agc	agc	agt	agc	agc	agc	agc	agc	agt	729
Ala	Asn	Gly	Lys	Ala	Ala	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	
210					215					220					225	
agc	agt	gat	gac	tca	gag	gag	gag	aag	gca	gca	gcc	acc	ccc	aag	aag	777
Ser	Ser	Asp	Asp	Ser	Glu	Glu	Glu	Lys	Ala	Ala	Ala	Thr	Pro	Lys	Lys	
				230				235						240		
act	gta	cct	aaa	aag	caa	gtt	gtg	gcc	aaa	gcc	cca	gtg	aaa	gca	gct	825
Thr	Val	Pro	Lys	Lys	Gln	Val	Val	Ala	Lys	Ala	Pro	Val	Lys	Ala	Ala	

245								250				255								
acc	acc	cct	acc	cgg	aag	agt	tct	agc	agt	gag	gat	tcc	tcc	agt	gac	873				
Thr	Thr	Pro	Thr	Arg	Lys	Ser	Ser	Ser	Ser	Glu	Asp	Ser	Ser	Ser	Asp					
		260					265					270								
gag	gaa	gag	gag	caa	aaa	aaa	ccc	atg	aaa	aat	aaa	cca	ggt	ccc	tac	921				
Glu	Glu	Glu	Glu	Gln	Lys	Lys	Pro	Met	Lys	Asn	Lys	Pro	Gly	Pro	Tyr					
	275					280					285									
agt	tac	gcc	ccc	ccg	cct	tct	gct	ccc	cca	cca	aag	aag	tct	ctg	gga	969				
Ser	Tyr	Ala	Pro	Pro	Pro	Ser	Ala	Pro	Pro	Pro	Lys	Lys	Ser	Leu	Gly					
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acc	cag	cct	ccc	aag	aag	gct	gtg	gag	aag	cag	cag	cct	gtg	gaa	agc	1017				
Thr	Gln	Pro	Pro	Lys	Lys	Ala	Val	Glu	Lys	Gln	Gln	Pro	Val	Glu	Ser					
				310					315					320						
agt	gaa	gac	agc	agt	gat	gag	tct	gat	tca	agt	tct	gaa	gaa	gag	aag	1065				
Ser	Glu	Asp	Ser	Ser	Asp	Glu	Ser	Asp	Ser	Ser	Ser	Glu	Glu	Glu	Lys					
			325					330					335							
aaa	ccc	cca	act	aag	gca	gta	gtc	tct	aaa	gca	acc	act	aaa	cca	cct	1113				
Lys	Pro	Pro	Thr	Lys	Ala	Val	Val	Ser	Lys	Ala	Thr	Thr	Lys	Pro	Pro					
	340						345					350								
cca	gca	aag	aaa	gca	gca	gag	agc	tct	tca	gac	agc	tca	gac	tct	gac	1161				
Pro	Ala	Lys	Lys	Ala	Ala	Glu	Ser	Ser	Ser	Asp	Ser	Ser	Asp	Ser	Asp					
	355					360					365									
agc	tct	gag	gat	gat	gaa	gct	cct	tct	aag	cca	gct	ggt	acc	acc	aag	1209				
Ser	Ser	Glu	Asp	Asp	Glu	Ala	Pro	Ser	Lys	Pro	Ala	Gly	Thr	Thr	Lys					
370					375					380					385					
aat	tct	tca	aat	aag	cca	gct	gtc	acc	acc	aag	tca	cct	gca	gtg	aag	1257				
Asn	Ser	Ser	Asn	Lys	Pro	Ala	Val	Thr	Thr	Lys	Ser	Pro	Ala	Val	Lys					
				390					395					400						
cca	gct	gca	gcc	ccc	aag	caa	cct	gtg	ggc	ggt	ggc	cag	aag	ctt	ctg	1305				
Pro	Ala	Ala	Ala	Pro	Lys	Gln	Pro	Val	Gly	Gly	Gly	Gln	Lys	Leu	Leu					
			405					410					415							
acg	aga	aag	gct	gac	agc	agc	tcc	agc	gag	gaa	gag	agc	agc	tcc	agt	1353				
Thr	Arg	Lys	Ala	Asp	Ser	Ser	Ser	Ser	Glu	Glu	Glu	Ser	Ser	Ser	Ser					
		420					425					430								
gag	gag	gag	aag	aca	aag	aag	atg	gtg	gcc	acc	act	aag	ccc	aag	gcg	1401				
Glu	Glu	Glu	Lys	Thr	Lys	Lys	Met	Val	Ala	Thr	Thr	Lys	Pro	Lys	Ala					
	435					440					445									
act	gcc	aaa	gca	gct	cta	tct	ctg	cct	gcc	aag	cag	gct	cct	cag	ggt	1449				
Thr	Ala	Lys	Ala	Ala	Leu	Ser	Leu	Pro	Ala	Lys	Gln	Ala	Pro	Gln	Gly					
450					455					460					465					
agt	agg	gac	agc	agc	tct	gat	tca	gac	agc	tcc	agc	agt	gag	gag	gag	1497				
Ser	Arg	Asp	Ser	Ser	Ser	Asp	Ser	Asp	Ser	Ser	Ser	Ser	Glu	Glu	Glu					
				470					475					480						
gaa	gag	aag	aca	tct	aag	tct	gca	gtt	aag	aag	aag	cca	cag	aag	gta	1545				
Glu	Glu	Lys	Thr	Ser	Lys	Ser	Ala	Val	Lys	Lys	Lys	Pro	Gln	Lys	Val					

485	490	495	
gca gga ggt gca gcc cct tcc aag cca gcc tct gca aag aaa gga aag Ala Gly Gly Ala Ala Pro Ser Lys Pro Ala Ser Ala Lys Lys Gly Lys 500 505 510			1593
gct gag agc agc aac agt tct tct tct gat gac tcc agt gag gaa gag Ala Glu Ser Ser Asn Ser Ser Ser Ser Asp Asp Ser Ser Glu Glu Glu 515 520 525			1641
gaa gag aag ctc aag ggc aag ggc tct cca aga cca caa gcc ccc aag Glu Glu Lys Leu Lys Gly Lys Gly Ser Pro Arg Pro Gln Ala Pro Lys 530 535 540 545			1689
gcc aat ggc acc tct gca ctg act gcc cag aat gga aaa gca gct aag Ala Asn Gly Thr Ser Ala Leu Thr Ala Gln Asn Gly Lys Ala Ala Lys 550 555 560			1737
aac agt gag gag gag gaa gaa gaa aag aaa aag gcg gca gtg gta gtt Asn Ser Glu Glu Glu Glu Glu Glu Lys Lys Lys Ala Ala Val Val Val 565 570 575			1785
tcc aaa tca ggt tca tta aag aag cgg aag cag aat gag gct gcc aag Ser Lys Ser Gly Ser Leu Lys Lys Arg Lys Gln Asn Glu Ala Ala Lys 580 585 590			1833
gag gca gag act cct cag gcc aag aag ata aag ctt cag acc cct aac Glu Ala Glu Thr Pro Gln Ala Lys Lys Ile Lys Leu Gln Thr Pro Asn 595 600 605			1881
aca ttt cca aaa agg aag aaa gga gaa aaa agg gca tca tcc cca ttc Thr Phe Pro Lys Arg Lys Lys Gly Glu Lys Arg Ala Ser Ser Pro Phe 610 615 620 625			1929
cga agg gtc agg gag gag gaa att gag gtg gat tca cga gtt gcg gac Arg Arg Val Arg Glu Glu Glu Ile Glu Val Asp Ser Arg Val Ala Asp 630 635 640			1977
aac tcc ttt gat gcc aag cga ggt gca gcc gga gac tgg gga gag cga Asn Ser Phe Asp Ala Lys Arg Gly Ala Ala Gly Asp Trp Gly Glu Arg 645 650 655			2025
gcc aat cag gtt ttg aag ttc acc aaa ggc aag tcc ttt cgg cat gag Ala Asn Gln Val Leu Lys Phe Thr Lys Gly Lys Ser Phe Arg His Glu 660 665 670			2073
aaa acc aag aag aag cgg ggc agc tac cgg gga ggc tca atc tct gtc Lys Thr Lys Lys Lys Arg Gly Ser Tyr Arg Gly Gly Ser Ile Ser Val 675 680 685			2121
cag gtc aat tct att aag ttt gac agc gag tga cctgaggcca tcttcggtga Gln Val Asn Ser Ile Lys Phe Asp Ser Glu			2174 690 695
agcaaggggtg atgatcggag actacttact ttctccagtg gacctgggaa ccctcaggtc			2234
tctaggtgag ggtcttgatg aggacagaag tttagagtag gtcctaagac tttacagtgt			2294
aacatcctct ctggtccttt tctgtgttcc tagttttgta cagacttggt tttgagtgtt			2354

gagtagcagg gacaaaataa gggaatgtta ttttttaaga aaattcattt tcattgttgt 2414
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 cttactattg aaaaaaaaaa aggaattc 2502

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<400> 32

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Leu Val Leu Gly Phe Leu Arg Asp Asn Gln Leu Ser Glu Val Ala Asn
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Lys Phe Ala Lys Ala Thr Gly Ala Thr Gln Gln Asp Ala Asn Ala Ser
 35 40 45

Ser Leu Leu Asp Ile Tyr Ser Phe Trp Leu Lys Ser Ala Lys Val Pro
 50 55 60

Glu Arg Lys Leu Gln Ala Asn Gly Pro Val Ala Lys Lys Ala Lys Lys
 65 70 75 80

Lys Ala Ser Ser Ser Asp Ser Glu Asp Ser Ser Glu Glu Glu Glu Glu
 85 90 95

Val Gln Gly Pro Pro Ala Lys Lys Ala Ala Val Pro Ala Lys Arg Val
 100 105 110

Gly Leu Pro Pro Gly Lys Ala Ala Ala Lys Ala Ser Glu Ser Ser Ser
 115 120 125

Ser Glu Glu Ser Arg Asp Asp Asp Asp Glu Glu Asp Gln Lys Lys Gln
 130 135 140

Pro Val Gln Lys Gly Val Lys Pro Gln Ala Lys Ala Ala Lys Ala Pro
 145 150 155 160

Pro Lys Lys Ala Lys Ser Ser Asp Ser Asp Ser Asp Ser Ser Ser Glu
 165 170 175

Asp Glu Pro Pro Lys Asn Gln Lys Pro Lys Ile Thr Pro Val Thr Val
 180 185 190

Lys Ala Gln Thr Lys Ala Pro Pro Lys Pro Ala Arg Ala Ala Pro Lys
195 200 205

Ile Ala Asn Gly Lys Ala Ala Ser Ser Ser Ser Ser Ser Ser Ser Ser
210 215 220

Ser Ser Ser Asp Asp Ser Glu Glu Glu Lys Ala Ala Ala Thr Pro Lys
225 230 235 240

Lys Thr Val Pro Lys Lys Gln Val Val Ala Lys Ala Pro Val Lys Ala
245 250 255

Ala Thr Thr Pro Thr Arg Lys Ser Ser Ser Ser Glu Asp Ser Ser Ser
260 265 270

Asp Glu Glu Glu Glu Gln Lys Lys Pro Met Lys Asn Lys Pro Gly Pro
275 280 285

Tyr Ser Tyr Ala Pro Pro Pro Ser Ala Pro Pro Pro Lys Lys Ser Leu
290 295 300

Gly Thr Gln Pro Pro Lys Lys Ala Val Glu Lys Gln Gln Pro Val Glu
305 310 315 320

Ser Ser Glu Asp Ser Ser Asp Glu Ser Asp Ser Ser Ser Glu Glu Glu
325 330 335

Lys Lys Pro Pro Thr Lys Ala Val Val Ser Lys Ala Thr Thr Lys Pro
340 345 350

Pro Pro Ala Lys Lys Ala Ala Glu Ser Ser Ser Asp Ser Ser Asp Ser
355 360 365

Asp Ser Ser Glu Asp Asp Glu Ala Pro Ser Lys Pro Ala Gly Thr Thr
370 375 380

Lys Asn Ser Ser Asn Lys Pro Ala Val Thr Thr Lys Ser Pro Ala Val
385 390 395 400

Lys Pro Ala Ala Ala Pro Lys Gln Pro Val Gly Gly Gly Gln Lys Leu
405 410 415

Leu Thr Arg Lys Ala Asp Ser Ser Ser Ser Glu Glu Glu Ser Ser Ser
420 425 430

Ser Glu Glu Glu Lys Thr Lys Lys Met Val Ala Thr Thr Lys Pro Lys
 435 440 445

Ala Thr Ala Lys Ala Ala Leu Ser Leu Pro Ala Lys Gln Ala Pro Gln
 450 455 460

Gly Ser Arg Asp Ser Ser Ser Asp Ser Asp Ser Ser Ser Ser Glu Glu
 465 470 475 480

Glu Glu Glu Lys Thr Ser Lys Ser Ala Val Lys Lys Lys Pro Gln Lys
 485 490 495

Val Ala Gly Gly Ala Ala Pro Ser Lys Pro Ala Ser Ala Lys Lys Gly
 500 505 510

Lys Ala Glu Ser Ser Asn Ser Ser Ser Ser Asp Asp Ser Ser Glu Glu
 515 520 525

Glu Glu Glu Lys Leu Lys Gly Lys Gly Ser Pro Arg Pro Gln Ala Pro
 530 535 540

Lys Ala Asn Gly Thr Ser Ala Leu Thr Ala Gln Asn Gly Lys Ala Ala
 545 550 555 560

Lys Asn Ser Glu Glu Glu Glu Glu Glu Lys Lys Lys Ala Ala Val Val
 565 570 575

Val Ser Lys Ser Gly Ser Leu Lys Lys Arg Lys Gln Asn Glu Ala Ala
 580 585 590

Lys Glu Ala Glu Thr Pro Gln Ala Lys Lys Ile Lys Leu Gln Thr Pro
 595 600 605

Asn Thr Phe Pro Lys Arg Lys Lys Gly Glu Lys Arg Ala Ser Ser Pro
 610 615 620

Phe Arg Arg Val Arg Glu Glu Glu Ile Glu Val Asp Ser Arg Val Ala
 625 630 635 640

Asp Asn Ser Phe Asp Ala Lys Arg Gly Ala Ala Gly Asp Trp Gly Glu
 645 650 655

Arg Ala Asn Gln Val Leu Lys Phe Thr Lys Gly Lys Ser Phe Arg His
 660 665 670

Glu Lys Thr Lys Lys Lys Arg Gly Ser Tyr Arg Gly Gly Ser Ile Ser
675 680 685

Val Gln Val Asn Ser Ile Lys Phe Asp Ser Glu
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Met Ser Pro Gly Glu Ala Thr Gln Ser Gly Ala Arg Pro Ala Asp Arg
10 15 20 25

tat ggc cta ttg aag cac agt cgc gag ttc ttg gac ttc ttc tgg gac 148
Tyr Gly Leu Leu Lys His Ser Arg Glu Phe Leu Asp Phe Phe Trp Asp
30 35 40

att gcg aag cct gag cag gag acg cga ctt gcg gcc acg gag aag ctg 196
Ile Ala Lys Pro Glu Gln Glu Thr Arg Leu Ala Ala Thr Glu Lys Leu
45 50 55

ctg gag tat ctg cgt ggc agg ccg aag ggg tcc gag atg aaa tat gcc 244
Leu Glu Tyr Leu Arg Gly Arg Pro Lys Gly Ser Glu Met Lys Tyr Ala
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Val Leu Val Glu Ile Leu Leu Ala Leu Leu Ala Gln Pro Ser His Leu	
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Met Arg Gln Val Ala Arg Ser Val Phe Gly His Ile Cys Ser His Leu	
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Thr Pro Arg Ala Leu Gln Leu Ile Leu Asp Val Leu Asn Pro Glu Thr	
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Ala Gln Leu Leu Gln Ser Phe Glu Asp Leu Pro Leu Cys Ser Ile Leu
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Gln Gln Ile Gln Glu Lys Tyr Asp Leu His Gln Val Lys Lys Ala Met
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Leu Arg Pro Ala Leu Phe Ala Asn Leu Phe Gly Val Leu Ala Leu Phe

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Ser Met Arg Glu Val Arg Ser Cys Phe Glu Asp Pro Glu Trp Lys				
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Gln Leu Met Gly Gln Val Leu Ala Lys Val Thr Glu Asn Leu Arg				
1055		1060		1065
Val Leu Gly Glu Ala Gln Thr Lys Ala Gln His Gln Gln Ala Leu				
1070		1075		1080
Ser Ser Leu Glu Leu Leu Asn Val Leu Phe Arg Thr Cys Lys His				

1085	1090	1095
Glu Lys Leu Thr Leu Asp Leu Thr Val Leu Leu Gly Val Leu Gln 1100 1105 1110		
Gly Gln Gln Gln Ser Leu Gln Gln Gly Ala His Ser Thr Gly Ser 1115 1120 1125		
Ser Arg Leu His Asp Leu Tyr Trp Gln Ala Met Lys Thr Leu Gly 1130 1135 1140		
Val Gln Arg Pro Lys Leu Glu Lys Lys Asp Ala Lys Glu Ile Pro 1145 1150 1155		
Ser Ala Thr Gln Ser Pro Ile Ser Lys Lys Arg Lys Lys Lys Gly 1160 1165 1170		
Phe Leu Pro Glu Thr Lys Lys Arg Lys Lys Arg Lys Ser Glu Asp 1175 1180 1185		
Gly Thr Pro Ala Glu Asp Gly Thr Pro Ala Ala Thr Gly Gly Ser 1190 1195 1200		
Gln Pro Pro Ser Met Gly Arg Lys Lys Arg Asn Arg Thr Lys Ala 1205 1210 1215		
Lys Val Pro Ala Gln Ala Asn Gly Thr Pro Thr Thr Lys Ser Pro 1220 1225 1230		
Ala Pro Gly Ala Pro Thr Arg Ser Pro Ser Thr Pro Ala Lys Ser 1235 1240 1245		
Pro Lys Leu Gln Lys Lys Asn Gln Lys Pro Ser Gln Val Asn Gly 1250 1255 1260		
Ala Pro Gly Ser Pro Thr Glu Pro Ala Gly Gln Lys Gln His Gln 1265 1270 1275		
Lys Ala Leu Pro Lys Lys Gly Val Leu Gly Lys Ser Pro Leu Ser 1280 1285 1290		
Ala Leu Ala Arg Lys Lys Ala Arg Leu Ser Leu Val Ile Arg Ser 1295 1300 1305		
Pro Ser Leu Leu Gln Ser Gly Ala Lys Lys Lys Ala Gln Val Arg		

1310

1315

1320

Lys Ala Gly Lys Pro
1325

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<211> 2427
<212> DNA
<213> human

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<222> (86)..(1681)

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caagaggctg agcagcccct gcatc atg gtg gtc aac cat gat gcc tcc agc 112
Met Val Val Asn His Asp Ala Ser Ser
1 5
ata ccc agg ctc cag ata gat gtg gac ggc agg aaa gag atc ctc ttc 160
Ile Pro Arg Leu Gln Ile Asp Val Asp Gly Arg Lys Glu Ile Leu Phe
10 15 20 25
tat gat cga att tta tgt gat gtc cct tgc agt gga gac ggc act atg 208
Tyr Asp Arg Ile Leu Cys Asp Val Pro Cys Ser Gly Asp Gly Thr Met
30 35 40
aga aaa aac att gat gtt tgg aaa aag tgg acc acc tta aat agc ttg 256
Arg Lys Asn Ile Asp Val Trp Lys Lys Trp Thr Thr Leu Asn Ser Leu
45 50 55
cag cta cat ggc tta cag ctg cgg att gca aca cgc ggg gct gaa cag 304
Gln Leu His Gly Leu Gln Leu Arg Ile Ala Thr Arg Gly Ala Glu Gln
60 65 70
ctg gct gaa ggt gga agg gtg gtg tat tcc acg tgt tca cta aac cct 352
Leu Ala Glu Gly Gly Arg Val Val Tyr Ser Thr Cys Ser Leu Asn Pro
75 80 85
att gag gat gaa gca gtc ata gca tct tta ctg gaa aaa agt gaa ggt 400
Ile Glu Asp Glu Ala Val Ile Ala Ser Leu Leu Glu Lys Ser Glu Gly
90 95 100 105
gct ttg gag ctt gct gat gtg tct aat gaa ctg cca ggg ctg aag tgg 448
Ala Leu Glu Leu Ala Asp Val Ser Asn Glu Leu Pro Gly Leu Lys Trp
110 115 120
atg cct gga atc aca cag tgg aag gta atg acg aaa gat ggg cag tgg 496
Met Pro Gly Ile Thr Gln Trp Lys Val Met Thr Lys Asp Gly Gln Trp
125 130 135
ttt aca gac tgg gac gct gtt cct cac agc aga cac acc cag atc cga 544
Phe Thr Asp Trp Asp Ala Val Pro His Ser Arg His Thr Gln Ile Arg
140 145 150

cct acc atg ttc cct ccg aag gac cca gaa aag ctg cag gcc atg cac	592
Pro Thr Met Phe Pro Pro Lys Asp Pro Glu Lys Leu Gln Ala Met His	
155 160 165	
ctg gag cga tgc ctt agg ata tta ccc cat cat cag aat act gga ggg	640
Leu Glu Arg Cys Leu Arg Ile Leu Pro His His Gln Asn Thr Gly Gly	
170 175 180 185	
ttt ttt gtg gca gta ttg gtg aaa aaa tct tca atg ccg tgg aat aaa	688
Phe Phe Val Ala Val Leu Val Lys Lys Ser Ser Met Pro Trp Asn Lys	
190 195 200	
cgt cag cca aag ctt cag ggt aaa tct gca gag acc aga gaa agc aca	736
Arg Gln Pro Lys Leu Gln Gly Lys Ser Ala Glu Thr Arg Glu Ser Thr	
205 210 215	
cag ctg agc cct gca gat ctc aca gaa ggg aaa ccc aca gat ccc tct	784
Gln Leu Ser Pro Ala Asp Leu Thr Glu Gly Lys Pro Thr Asp Pro Ser	
220 225 230	
aag ctg gaa agt ccg tca ttc aca gga act ggt gac aca gaa ata gct	832
Lys Leu Glu Ser Pro Ser Phe Thr Gly Thr Gly Asp Thr Glu Ile Ala	
235 240 245	
cat gca act gag gat tta gag aat aat ggc agt aag aaa gat ggc gtg	880
His Ala Thr Glu Asp Leu Glu Asn Asn Gly Ser Lys Lys Asp Gly Val	
250 255 260 265	
tgt ggt cct cct cca tca aag aaa atg aag tta ttt gga ttt aaa gaa	928
Cys Gly Pro Pro Ser Lys Lys Met Lys Leu Phe Gly Phe Lys Glu	
270 275 280	
gat cca ttt gta ttt att cct gaa gat gac cca tta ttt cca cct att	976
Asp Pro Phe Val Phe Ile Pro Glu Asp Asp Pro Leu Phe Pro Pro Ile	
285 290 295	
gag aaa ttt tat gct ttg gat cct tca ttc cca agg atg aat ttg tta	1024
Glu Lys Phe Tyr Ala Leu Asp Pro Ser Phe Pro Arg Met Asn Leu Leu	
300 305 310	
act cgg act aca gaa ggg aag aaa agg cag ctc tac atg gtt tct aag	1072
Thr Arg Thr Thr Glu Gly Lys Lys Arg Gln Leu Tyr Met Val Ser Lys	
315 320 325	
gag ttg cgg aat gtg ctg ctg aat aac agt gag aag atg aag gtt att	1120
Glu Leu Arg Asn Val Leu Leu Asn Asn Ser Glu Lys Met Lys Val Ile	
330 335 340 345	
aac acg ggg atc aaa gtc tgg tgt aga aat aac agc ggt gaa gag ttt	1168
Asn Thr Gly Ile Lys Val Trp Cys Arg Asn Asn Ser Gly Glu Glu Phe	
350 355 360	
gac tgt gct ttc cgg ctg gca cag gag gga ata tat aca ttg tat cca	1216
Asp Cys Ala Phe Arg Leu Ala Gln Glu Gly Ile Tyr Thr Leu Tyr Pro	
365 370 375	
ttt att aac tca aga att att act gta tca atg gaa gat gtt aag ata	1264
Phe Ile Asn Ser Arg Ile Ile Thr Val Ser Met Glu Asp Val Lys Ile	
380 385 390	

ctg ttg acc cag gaa aat ccc ttt ttt aga aaa ctc agc agt gag acc	1312
Leu Leu Thr Gln Glu Asn Pro Phe Phe Arg Lys Leu Ser Ser Glu Thr	
395 400 405	
tac agt caa gca aag gac ctg gca aag gga agc atc gtg ctg aag tat	1360
Tyr Ser Gln Ala Lys Asp Leu Ala Lys Gly Ser Ile Val Leu Lys Tyr	
410 415 420 425	
gaa cca gat tct gcg aat cca gac gct cta cag tgt ccc atc gtc tta	1408
Glu Pro Asp Ser Ala Asn Pro Asp Ala Leu Gln Cys Pro Ile Val Leu	
430 435 440	
tgc gga tgg cgg gga aag gcc tcc att cga act ttt gtg ccc aag aat	1456
Cys Gly Trp Arg Gly Lys Ala Ser Ile Arg Thr Phe Val Pro Lys Asn	
445 450 455	
gaa cgg ctt cac tat ctc agg atg atg ggg ctg gag gta ttg gga gaa	1504
Glu Arg Leu His Tyr Leu Arg Met Met Gly Leu Glu Val Leu Gly Glu	
460 465 470	
aag aag aag gaa ggg gtt atc ctc aca aat gag agt gca gcc agc acc	1552
Lys Lys Lys Glu Gly Val Ile Leu Thr Asn Glu Ser Ala Ala Ser Thr	
475 480 485	
gga cag cca gac aat gac gtg act gag gga cag aga gca gga gag ccc	1600
Gly Gln Pro Asp Asn Asp Val Thr Glu Gly Gln Arg Ala Gly Glu Pro	
490 495 500 505	
aac agc cca gat gca gaa gag gcc aac agt cca gac gtg aca gca ggc	1648
Asn Ser Pro Asp Ala Glu Glu Ala Asn Ser Pro Asp Val Thr Ala Gly	
510 515 520	
tgt gac ccg gcg ggg gtc cat cca ccc cgg tga gcaggcccaa ggcagcggg	1701
Cys Asp Pro Ala Gly Val His Pro Pro Arg	
525 530	
gccccacaccc ctcacacgca aaactggcctt cttctgggtca ctggtgtctg aaaccaaadc	1761
cagagcagcc tgtggcctgt aaagcatata tttctagtga ctgcagactg gtgggatcat	1821
aggagccttc tgaatgacca ggactgcttt ctttggagct gatgaaaatg tactctttta	1881
gcgtgttaga aatcacttgt tttattttgt tttctttggc caagctgggt ctagtgtttc	1941
ttttgctggg aatagacttt caaaagttgt acttctatca agaaacaaaa ctgcccttgc	2001
agaaatttca ggtcttttgt taagcctgta ttggtcttaa ggtgcagtat tttttaaat	2061
attatttata gaaagaatct ataaattctt ggggaagtgt gttataagct ttaataatta	2121
cattgagctg cacctcagt gtgtgtcatt aacatgcagt ggggttaata tctgaggcct	2181
cagatgactt tgtgcctttt ggaataaagg gtaaaataaa ctctcccaga gtaagagctg	2241
tatcgtgaat tgtcatacta attattgagg gggacttatg tgcttttatt gaatggagt	2301
ctttacaatt tttattttta aatgggggttg ggatccttgg aatatttcaa taaaattgat	2361
aaaatataaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	2421

aaaaaa

2427

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<211> 531
<212> PRT
<213> human

<400> 36

Met Val Val Asn His Asp Ala Ser Ser Ile Pro Arg Leu Gln Ile Asp
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Val Asp Gly Arg Lys Glu Ile Leu Phe Tyr Asp Arg Ile Leu Cys Asp
20 25 30

Val Pro Cys Ser Gly Asp Gly Thr Met Arg Lys Asn Ile Asp Val Trp
35 40 45

Lys Lys Trp Thr Thr Leu Asn Ser Leu Gln Leu His Gly Leu Gln Leu
50 55 60

Arg Ile Ala Thr Arg Gly Ala Glu Gln Leu Ala Glu Gly Gly Arg Val
65 70 75 80

Val Tyr Ser Thr Cys Ser Leu Asn Pro Ile Glu Asp Glu Ala Val Ile
85 90 95

Ala Ser Leu Leu Glu Lys Ser Glu Gly Ala Leu Glu Leu Ala Asp Val
100 105 110

Ser Asn Glu Leu Pro Gly Leu Lys Trp Met Pro Gly Ile Thr Gln Trp
115 120 125

Lys Val Met Thr Lys Asp Gly Gln Trp Phe Thr Asp Trp Asp Ala Val
130 135 140

Pro His Ser Arg His Thr Gln Ile Arg Pro Thr Met Phe Pro Pro Lys
145 150 155 160

Asp Pro Glu Lys Leu Gln Ala Met His Leu Glu Arg Cys Leu Arg Ile
165 170 175

Leu Pro His His Gln Asn Thr Gly Gly Phe Phe Val Ala Val Leu Val
180 185 190

Lys Lys Ser Ser Met Pro Trp Asn Lys Arg Gln Pro Lys Leu Gln Gly
195 200 205

Lys Ser Ala Glu Thr Arg Glu Ser Thr Gln Leu Ser Pro Ala Asp Leu
210 215 220

Thr Glu Gly Lys Pro Thr Asp Pro Ser Lys Leu Glu Ser Pro Ser Phe
225 230 235 240

Thr Gly Thr Gly Asp Thr Glu Ile Ala His Ala Thr Glu Asp Leu Glu
245 250 255

Asn Asn Gly Ser Lys Lys Asp Gly Val Cys Gly Pro Pro Pro Ser Lys
260 265 270

Lys Met Lys Leu Phe Gly Phe Lys Glu Asp Pro Phe Val Phe Ile Pro
275 280 285

Glu Asp Asp Pro Leu Phe Pro Pro Ile Glu Lys Phe Tyr Ala Leu Asp
290 295 300

Pro Ser Phe Pro Arg Met Asn Leu Leu Thr Arg Thr Thr Glu Gly Lys
305 310 315 320

Lys Arg Gln Leu Tyr Met Val Ser Lys Glu Leu Arg Asn Val Leu Leu
325 330 335

Asn Asn Ser Glu Lys Met Lys Val Ile Asn Thr Gly Ile Lys Val Trp
340 345 350

Cys Arg Asn Asn Ser Gly Glu Glu Phe Asp Cys Ala Phe Arg Leu Ala
355 360 365

Gln Glu Gly Ile Tyr Thr Leu Tyr Pro Phe Ile Asn Ser Arg Ile Ile
370 375 380

Thr Val Ser Met Glu Asp Val Lys Ile Leu Leu Thr Gln Glu Asn Pro
385 390 395 400

Phe Phe Arg Lys Leu Ser Ser Glu Thr Tyr Ser Gln Ala Lys Asp Leu
405 410 415

Ala Lys Gly Ser Ile Val Leu Lys Tyr Glu Pro Asp Ser Ala Asn Pro
420 425 430

Asp Ala Leu Gln Cys Pro Ile Val Leu Cys Gly Trp Arg Gly Lys Ala
435 440 445

Ser Ile Arg Thr Phe Val Pro Lys Asn Glu Arg Leu His Tyr Leu Arg
 450 455 460

Met Met Gly Leu Glu Val Leu Gly Glu Lys Lys Lys Glu Gly Val Ile
 465 470 475 480

Leu Thr Asn Glu Ser Ala Ala Ser Thr Gly Gln Pro Asp Asn Asp Val
 485 490 495

Thr Glu Gly Gln Arg Ala Gly Glu Pro Asn Ser Pro Asp Ala Glu Glu
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Pro Pro Arg
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<220>
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 atg ggg ccc agc acc cct ctc ctc atc ttg ttc ctt ttg tca tgg tcg 108
 Met Gly Pro Ser Thr Pro Leu Leu Ile Leu Phe Leu Leu Ser Trp Ser
 1 5 10 15
 gga ccc ctc caa gga cag cag cac cac ctt gtg gag tac atg gaa cgc 156
 Gly Pro Leu Gln Gly Gln Gln His His Leu Val Glu Tyr Met Glu Arg
 20 25 30
 cga cta gct gct tta gag gaa cgg ctg gcc cag tgc cag gac cag agt 204
 Arg Leu Ala Ala Leu Glu Glu Arg Leu Ala Gln Cys Gln Asp Gln Ser
 35 40 45
 agt cgg cat gct gct gag ctg cgg gac ttc aag aac aag atg ctg cca 252
 Ser Arg His Ala Ala Glu Leu Arg Asp Phe Lys Asn Lys Met Leu Pro
 50 55 60
 ctg ctg gag gtg gca gag aag gag cgg gag gca ctc aga act gag gcc 300
 Leu Leu Glu Val Ala Glu Lys Glu Arg Glu Ala Leu Arg Thr Glu Ala
 65 70 75 80
 gac acc atc tcc ggg aga gtg gat cgt ctg gag cgg gag gta gac tat 348

Asp	Thr	Ile	Ser	Gly	Arg	Val	Asp	Arg	Leu	Glu	Arg	Glu	Val	Asp	Tyr		
				85					90					95			
ctg	gag	acc	cag	aac	cca	gct	ctg	ccc	tgt	gta	gag	ttt	gat	gag	aag	396	
Leu	Glu	Thr	Gln	Asn	Pro	Ala	Leu	Pro	Cys	Val	Glu	Phe	Asp	Glu	Lys		
			100					105					110				
gtg	act	gga	ggc	cct	ggg	acc	aaa	ggc	aag	gga	aga	agg	aat	gag	aag	444	
Val	Thr	Gly	Gly	Pro	Gly	Thr	Lys	Gly	Lys	Gly	Arg	Arg	Asn	Glu	Lys		
		115					120					125					
tac	gat	atg	gtg	aca	gac	tgt	ggc	tac	aca	atc	tct	caa	gtg	aga	tca	492	
Tyr	Asp	Met	Val	Thr	Asp	Cys	Gly	Tyr	Thr	Ile	Ser	Gln	Val	Arg	Ser		
	130					135					140						
atg	aag	att	ctg	aag	cga	ttt	ggg	ggc	cca	gct	ggg	cta	tgg	acc	aag	540	
Met	Lys	Ile	Leu	Lys	Arg	Phe	Gly	Gly	Pro	Ala	Gly	Leu	Trp	Thr	Lys		
145					150					155					160		
gat	cca	ctg	ggg	caa	aca	gag	aag	atc	tac	gtg	tta	gat	ggg	aca	cag	588	
Asp	Pro	Leu	Gly	Gln	Thr	Glu	Lys	Ile	Tyr	Val	Leu	Asp	Gly	Thr	Gln		
				165					170					175			
aat	gac	aca	gcc	ttt	gtc	ttc	cca	agg	ctg	cgt	gac	ttc	acc	ctt	gcc	636	
Asn	Asp	Thr	Ala	Phe	Val	Phe	Pro	Arg	Leu	Arg	Asp	Phe	Thr	Leu	Ala		
		180						185					190				
atg	gct	gcc	cgg	aaa	gct	tcc	cga	gtc	cgg	gtg	ccc	ttc	ccc	tgg	gta	684	
Met	Ala	Ala	Arg	Lys	Ala	Ser	Arg	Val	Arg	Val	Pro	Phe	Pro	Trp	Val		
		195					200					205					
ggc	aca	ggg	cag	ctg	gta	tat	ggg	ggc	ttt	ctt	tat	ttt	gct	cgg	agg	732	
Gly	Thr	Gly	Gln	Leu	Val	Tyr	Gly	Gly	Phe	Leu	Tyr	Phe	Ala	Arg	Arg		
	210					215					220						
cct	cct	gga	aga	cct	ggg	gga	ggg	ggg	gag	atg	gag	aac	act	ttg	cag	780	
Pro	Pro	Gly	Arg	Pro	Gly	Gly	Gly	Gly	Glu	Met	Glu	Asn	Thr	Leu	Gln		
225					230					235					240		
cta	atc	aaa	ttc	cac	ctg	gca	aac	cga	aca	gtg	gtg	gac	agc	tca	gta	828	
Leu	Ile	Lys	Phe	His	Leu	Ala	Asn	Arg	Thr	Val	Val	Asp	Ser	Ser	Val		
				245					250					255			
ttc	cca	gca	gag	ggg	ctg	atc	ccc	ccc	tac	ggc	ttg	aca	gca	gac	acc	876	
Phe	Pro	Ala	Glu	Gly	Leu	Ile	Pro	Pro	Tyr	Gly	Leu	Thr	Ala	Asp	Thr		
			260					265					270				
tac	atc	gac	ctg	gca	gct	gat	gag	gaa	ggg	ctt	tgg	gct	gtc	tat	gcc	924	
Tyr	Ile	Asp	Leu	Ala	Ala	Asp	Glu	Glu	Gly	Leu	Trp	Ala	Val	Tyr	Ala		
		275					280					285					
acc	cgg	gag	gat	gac	agg	cac	ttg	tgt	ctg	gcc	aag	tta	gat	cca	cag	972	
Thr	Arg	Glu	Asp	Asp	Arg	His	Leu	Cys	Leu	Ala	Lys	Leu	Asp	Pro	Gln		
		290				295					300						
aca	ctg	gac	aca	gag	cag	cag	tgg	gac	aca	cca	tgt	ccc	aga	gag	aat	1020	
Thr	Leu	Asp	Thr	Glu	Gln	Gln	Trp	Asp	Thr	Pro	Cys	Pro	Arg	Glu	Asn		
305					310					315					320		
gct	gag	gct	gcc	ttt	gtc	atc	tgt	ggg	acc	ctc	tat	gtc	gtc	tat	aac	1068	

Ala Glu Ala Ala Phe Val Ile Cys Gly Thr Leu Tyr Val Val Tyr Asn	
325 330 335	
acc cgt cct gcc agt cgg gcc cgc atc cag tgc tcc ttt gat gcc agc	1116
Thr Arg Pro Ala Ser Arg Ala Arg Ile Gln Cys Ser Phe Asp Ala Ser	
340 345 350	
ggc acc ctg acc cct gaa cgg gca gca ctc cct tat ttt ccc cgc aga	1164
Gly Thr Leu Thr Pro Glu Arg Ala Ala Leu Pro Tyr Phe Pro Arg Arg	
355 360 365	
tat ggt gcc cat gcc agc ctc cgc tat aac ccc cga gaa cgc cag ctc	1212
Tyr Gly Ala His Ala Ser Leu Arg Tyr Asn Pro Arg Glu Arg Gln Leu	
370 375 380	
tat gcc tgg gat gat ggc tac cag att gtc tat aag ctg gag atg agg	1260
Tyr Ala Trp Asp Asp Gly Tyr Gln Ile Val Tyr Lys Leu Glu Met Arg	
385 390 395 400	
aag aaa gag gag gag gtt tga ggagctagcc ttgttttttg catctttctc	1311
Lys Lys Glu Glu Val	
405	
actcccatcac atttatatta tatccccact aaattttcttg ttccctcattc ttcaaagtgtg	1371
ggccagttgt ggctcaaatac ctctatatatt ttagccaatg gcaatcaaatac tctttcagct	1431
cctttgtttc atacggaact ccagatcctg agtaatcctt ttagagcccg aagagtcaaa	1491
accctcaatg ttccctcctg ctctcctgcc ccatgtcaac aaatttcagg ctaaggatgc	1551
cccagaccca gggctctaac cttgtatgag ggcaggccca gggagcaggc agcagtgttc	1611
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ttccctcactc ctcccttcag tgtcctgagg aacaggactt tctccacatt gttttgtatt	1731
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a	1792

<210> 38
 <211> 406
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 <213> human

<400> 38

Met Gly Pro Ser Thr Pro Leu Leu Ile Leu Phe Leu Leu Ser Trp Ser
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Gly Pro Leu Gln Gly Gln Gln His His Leu Val Glu Tyr Met Glu Arg
20 25 30

Arg Leu Ala Ala Leu Glu Glu Arg Leu Ala Gln Cys Gln Asp Gln Ser
35 40 45

Ser Arg His Ala Ala Glu Leu Arg Asp Phe Lys Asn Lys Met Leu Pro
 50 55 60

Leu Leu Glu Val Ala Glu Lys Glu Arg Glu Ala Leu Arg Thr Glu Ala
 65 70 75 80

Asp Thr Ile Ser Gly Arg Val Asp Arg Leu Glu Arg Glu Val Asp Tyr
 85 90 95

Leu Glu Thr Gln Asn Pro Ala Leu Pro Cys Val Glu Phe Asp Glu Lys
 100 105 110

Val Thr Gly Gly Pro Gly Thr Lys Gly Lys Gly Arg Arg Asn Glu Lys
 115 120 125

Tyr Asp Met Val Thr Asp Cys Gly Tyr Thr Ile Ser Gln Val Arg Ser
 130 135 140

Met Lys Ile Leu Lys Arg Phe Gly Gly Pro Ala Gly Leu Trp Thr Lys
 145 150 155 160

Asp Pro Leu Gly Gln Thr Glu Lys Ile Tyr Val Leu Asp Gly Thr Gln
 165 170 175

Asn Asp Thr Ala Phe Val Phe Pro Arg Leu Arg Asp Phe Thr Leu Ala
 180 185 190

Met Ala Ala Arg Lys Ala Ser Arg Val Arg Val Pro Phe Pro Trp Val
 195 200 205

Gly Thr Gly Gln Leu Val Tyr Gly Gly Phe Leu Tyr Phe Ala Arg Arg
 210 215 220

Pro Pro Gly Arg Pro Gly Gly Gly Gly Glu Met Glu Asn Thr Leu Gln
 225 230 235 240

Leu Ile Lys Phe His Leu Ala Asn Arg Thr Val Val Asp Ser Ser Val
 245 250 255

Phe Pro Ala Glu Gly Leu Ile Pro Pro Tyr Gly Leu Thr Ala Asp Thr
 260 265 270

Tyr Ile Asp Leu Ala Ala Asp Glu Glu Gly Leu Trp Ala Val Tyr Ala
 275 280 285

Thr Arg Glu Asp Asp Arg His Leu Cys Leu Ala Lys Leu Asp Pro Gln
 290 295 300

Thr Leu Asp Thr Glu Gln Gln Trp Asp Thr Pro Cys Pro Arg Glu Asn
 305 310 315 320

Ala Glu Ala Ala Phe Val Ile Cys Gly Thr Leu Tyr Val Val Tyr Asn
 325 330 335

Thr Arg Pro Ala Ser Arg Ala Arg Ile Gln Cys Ser Phe Asp Ala Ser
 340 345 350

Gly Thr Leu Thr Pro Glu Arg Ala Ala Leu Pro Tyr Phe Pro Arg Arg
 355 360 365

Tyr Gly Ala His Ala Ser Leu Arg Tyr Asn Pro Arg Glu Arg Gln Leu
 370 375 380

Tyr Ala Trp Asp Asp Gly Tyr Gln Ile Val Tyr Lys Leu Glu Met Arg
 385 390 395 400

Lys Lys Glu Glu Glu Val
 405

<210> 39
 <211> 1925
 <212> DNA
 <213> human

<220>
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 <222> (127)..(1278)

<400> 39
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 gccaga atg ggt gtg aag gcg tct caa aca ggc ttt gtg gtc ctg gtg 168
 Met Gly Val Lys Ala Ser Gln Thr Gly Phe Val Val Leu Val
 1 5 10
 ctg ctc cag tgc tgc tct gca tac aaa ctg gtc tgc tac tac acc agc 216
 Leu Leu Gln Cys Cys Ser Ala Tyr Lys Leu Val Cys Tyr Tyr Thr Ser
 15 20 25 30
 tgg tcc cag tac cgg gaa ggc gat ggg agc tgc ttc cca gat gcc ctt 264
 Trp Ser Gln Tyr Arg Glu Gly Asp Gly Ser Cys Phe Pro Asp Ala Leu
 35 40 45

gac cgc ttc ctc tgt acc cac atc atc tac agc ttt gcc aat ata agc Asp Arg Phe Leu Cys Thr His Ile Ile Tyr Ser Phe Ala Asn Ile Ser 50 55 60	312
aac gat cac atc gac acc tgg gag tgg aat gat gtg acg ctc tac ggc Asn Asp His Ile Asp Thr Trp Glu Trp Asn Asp Val Thr Leu Tyr Gly 65 70 75	360
atg ctc aac aca ctc aag aac agg aac ccc aac ctg aag act ctc ttg Met Leu Asn Thr Leu Lys Asn Arg Asn Pro Asn Leu Lys Thr Leu Leu 80 85 90	408
tct gtc gga gga tgg aac ttt ggg tct caa aga ttt tcc aag ata gcc Ser Val Gly Gly Trp Asn Phe Gly Ser Gln Arg Phe Ser Lys Ile Ala 95 100 105 110	456
tcc aac acc cag agt cgc cgg act ttc atc aag tca gta ccg cca ttc Ser Asn Thr Gln Ser Arg Arg Thr Phe Ile Lys Ser Val Pro Pro Phe 115 120 125	504
ctg cgc acc cat ggc ttt gat ggg ctg gac ctt gcc tgg ctc tac cct Leu Arg Thr His Gly Phe Asp Gly Leu Asp Leu Ala Trp Leu Tyr Pro 130 135 140	552
gga cgg aga gac aaa cag cat ttt acc acc cta atc aag gaa atg aag Gly Arg Arg Asp Lys Gln His Phe Thr Thr Leu Ile Lys Glu Met Lys 145 150 155	600
gcc gaa ttt ata aag gaa gcc cag cca ggg aaa aag cag ctc ctg ctc Ala Glu Phe Ile Lys Glu Ala Gln Pro Gly Lys Lys Gln Leu Leu Leu 160 165 170	648
agc gca gca ctg tct gcg ggg aag gtc acc att gac agc agc tat gac Ser Ala Ala Leu Ser Ala Gly Lys Val Thr Ile Asp Ser Ser Tyr Asp 175 180 185 190	696
att gcc aag ata tcc caa cac ctg gat ttc att agc atc atg acc tac Ile Ala Lys Ile Ser Gln His Leu Asp Phe Ile Ser Ile Met Thr Tyr 195 200 205	744
gat ttt cat gga gcc tgg cgt ggg acc aca ggc cat cac agt ccc ctg Asp Phe His Gly Ala Trp Arg Gly Thr Thr Gly His His Ser Pro Leu 210 215 220	792
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tat gct gtg ggg tac atg ttg agg ctg ggg gct cct gcc agt aag ctg Tyr Ala Val Gly Tyr Met Leu Arg Leu Gly Ala Pro Ala Ser Lys Leu 240 245 250	888
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ctc cgc gga gcc aca gtc cat aga acc ctc ggc cag cag gtc ccc tat	1080
Leu Arg Gly Ala Thr Val His Arg Thr Leu Gly Gln Gln Val Pro Tyr	
305 310 315	
gcc acc aag ggc aac cag tgg gta gga tac gac gac cag gaa agc gtc	1128
Ala Thr Lys Gly Asn Gln Trp Val Gly Tyr Asp Asp Gln Glu Ser Val	
320 325 330	
aaa agc aag gtg cag tac ctg aag gat agg cag ctg gca ggc gcc atg	1176
Lys Ser Lys Val Gln Tyr Leu Lys Asp Arg Gln Leu Ala Gly Ala Met	
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Val Trp Ala Leu Asp Leu Asp Asp Phe Gln Gly Ser Phe Cys Gly Gln	
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Asp Leu Arg Phe Pro Leu Thr Asn Ala Ile Lys Asp Ala Leu Ala Ala	
370 375 380	
acg tag ccctctgttc tgcacacagc acggggggcca aggatgcccc gtccccctct	1328
Thr	
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 35 40 45

Phe Leu Cys Thr His Ile Ile Tyr Ser Phe Ala Asn Ile Ser Asn Asp
 50 55 60

His Ile Asp Thr Trp Glu Trp Asn Asp Val Thr Leu Tyr Gly Met Leu
 65 70 75 80

Asn Thr Leu Lys Asn Arg Asn Pro Asn Leu Lys Thr Leu Leu Ser Val
 85 90 95

Gly Gly Trp Asn Phe Gly Ser Gln Arg Phe Ser Lys Ile Ala Ser Asn
 100 105 110

Thr Gln Ser Arg Arg Thr Phe Ile Lys Ser Val Pro Pro Phe Leu Arg
 115 120 125

Thr His Gly Phe Asp Gly Leu Asp Leu Ala Trp Leu Tyr Pro Gly Arg
 130 135 140

Arg Asp Lys Gln His Phe Thr Thr Leu Ile Lys Glu Met Lys Ala Glu
 145 150 155 160

Phe Ile Lys Glu Ala Gln Pro Gly Lys Lys Gln Leu Leu Leu Ser Ala
 165 170 175

Ala Leu Ser Ala Gly Lys Val Thr Ile Asp Ser Ser Tyr Asp Ile Ala
 180 185 190

Lys Ile Ser Gln His Leu Asp Phe Ile Ser Ile Met Thr Tyr Asp Phe
 195 200 205

His Gly Ala Trp Arg Gly Thr Thr Gly His His Ser Pro Leu Phe Arg
 210 215 220

Gly Gln Glu Asp Ala Ser Pro Asp Arg Phe Ser Asn Thr Asp Tyr Ala
 225 230 235 240

Val Gly Tyr Met Leu Arg Leu Gly Ala Pro Ala Ser Lys Leu Val Met
 245 250 255

Gly Ile Pro Thr Phe Gly Arg Ser Phe Thr Leu Ala Ser Ser Glu Thr
 260 265 270

Gly Val Gly Ala Pro Ile Ser Gly Pro Gly Ile Pro Gly Arg Phe Thr
 275 280 285

Lys Glu Ala Gly Thr Leu Ala Tyr Tyr Glu Ile Cys Asp Phe Leu Arg
 290 295 300

Gly Ala Thr Val His Arg Thr Leu Gly Gln Gln Val Pro Tyr Ala Thr
 305 310 315 320

Lys Gly Asn Gln Trp Val Gly Tyr Asp Asp Gln Glu Ser Val Lys Ser
 325 330 335

Lys Val Gln Tyr Leu Lys Asp Arg Gln Leu Ala Gly Ala Met Val Trp
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 agaaagtcag tttcccggca ctggcacccc ggaacctcag gggctgccga gctggggggg 180
 cgctcaagct gcgaggatcc gggctgcccg cgagacgagg agcgggcgcc cagg atg 237
 Met
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 ggg tgc atg aag tcc aag ttc ctc cag gtc gga ggc aat aca ttc tca 285
 Gly Cys Met Lys Ser Lys Phe Leu Gln Val Gly Gly Asn Thr Phe Ser
 5 10 15
 aaa act gaa acc agc gcc agc cca cac tgt cct gtg tac gtg ccg gat 333
 Lys Thr Glu Thr Ser Ala Ser Pro His Cys Pro Val Tyr Val Pro Asp
 20 25 30

ccc	aca	tcc	acc	atc	aag	ccg	ggg	cct	aat	agc	cac	aac	agc	aac	aca	381
Pro	Thr	Ser	Thr	Ile	Lys	Pro	Gly	Pro	Asn	Ser	His	Asn	Ser	Asn	Thr	
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cca	gga	atc	agg	gag	gca	ggc	tct	gag	gac	atc	atc	gtg	gtt	gcc	ctg	429
Pro	Gly	Ile	Arg	Glu	Ala	Gly	Ser	Glu	Asp	Ile	Ile	Val	Val	Ala	Leu	
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tat	gat	tac	gag	gcc	att	cac	cac	gaa	gac	ctc	agc	ttc	cag	aag	ggg	477
Tyr	Asp	Tyr	Glu	Ala	Ile	His	His	Glu	Asp	Leu	Ser	Phe	Gln	Lys	Gly	
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gac	cag	atg	gtg	gtc	cta	gag	gaa	tcc	ggg	gag	tgg	tgg	aag	gct	cga	525
Asp	Gln	Met	Val	Val	Leu	Glu	Glu	Ser	Gly	Glu	Trp	Trp	Lys	Ala	Arg	
			85					90					95			
tcc	ctg	gcc	acc	cgg	aag	gag	ggc	tac	atc	cca	agc	aac	tat	gtc	gcc	573
Ser	Leu	Ala	Thr	Arg	Lys	Glu	Gly	Tyr	Ile	Pro	Ser	Asn	Tyr	Val	Ala	
	100						105					110				
cgc	gtt	gac	tct	ctg	gag	aca	gag	gag	tgg	ttt	ttc	aag	ggc	atc	agc	621
Arg	Val	Asp	Ser	Leu	Glu	Thr	Glu	Glu	Trp	Phe	Phe	Lys	Gly	Ile	Ser	
	115					120					125					
cgg	aag	gac	gca	gag	cgc	caa	ctg	ctg	gct	ccc	ggc	aac	atg	ctg	ggc	669
Arg	Lys	Asp	Ala	Glu	Arg	Gln	Leu	Leu	Ala	Pro	Gly	Asn	Met	Leu	Gly	
130					135					140					145	
tcc	ttc	atg	atc	cgg	gat	agc	gag	acc	act	aaa	gga	agc	tac	tct	ttg	717
Ser	Phe	Met	Ile	Arg	Asp	Ser	Glu	Thr	Thr	Lys	Gly	Ser	Tyr	Ser	Leu	
				150					155					160		
tcc	gtg	cga	gac	tac	gac	cct	cgg	cag	gga	gat	acc	gtg	aaa	cat	tac	765
Ser	Val	Arg	Asp	Tyr	Asp	Pro	Arg	Gln	Gly	Asp	Thr	Val	Lys	His	Tyr	
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aag	atc	cgg	acc	ctg	gac	aac	ggg	ggc	ttc	tac	ata	tcc	ccc	cga	agc	813
Lys	Ile	Arg	Thr	Leu	Asp	Asn	Gly	Gly	Phe	Tyr	Ile	Ser	Pro	Arg	Ser	
	180						185					190				
acc	ttc	agc	act	ctg	cag	gag	ctg	gtg	gac	cac	tac	aag	aag	ggg	aac	861
Thr	Phe	Ser	Thr	Leu	Gln	Glu	Leu	Val	Asp	His	Tyr	Lys	Lys	Gly	Asn	
	195					200					205					
gac	ggg	ctc	tgc	cag	aaa	ctg	tcg	gtg	ccc	tgc	atg	tct	tcc	aag	ccc	909
Asp	Gly	Leu	Cys	Gln	Lys	Leu	Ser	Val	Pro	Cys	Met	Ser	Ser	Lys	Pro	
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cag	aag	cct	tgg	gag	aaa	gat	gcc	tgg	gag	atc	cct	cgg	gaa	tcc	ctc	957
Gln	Lys	Pro	Trp	Glu	Lys	Asp	Ala	Trp	Glu	Ile	Pro	Arg	Glu	Ser	Leu	
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aag	ctg	gag	aag	aaa	ctt	gga	gct	ggg	cag	ttt	ggg	gaa	gtc	tgg	atg	1005
Lys	Leu	Glu	Lys	Lys	Leu	Gly	Ala	Gly	Gln	Phe	Gly	Glu	Val	Trp	Met	
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gcc	acc	tac	aac	aag	cac	acc	aag	gtg	gca	gtg	aag	acg	atg	aag	cca	1053
Ala	Thr	Tyr	Asn	Lys	His	Thr	Lys	Val	Ala	Val	Lys	Thr	Met	Lys	Pro	
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gag ccc atc tac atc atc acg gag ttc atg gcc aaa gga agc ttg ctg Glu Pro Ile Tyr Ile Ile Thr Glu Phe Met Ala Lys Gly Ser Leu Leu 310 315 320	1197
gac ttt ctg aaa agt gat gag ggc agc aag cag cca ttg cca aaa ctc Asp Phe Leu Lys Ser Asp Glu Gly Ser Lys Gln Pro Leu Pro Lys Leu 325 330 335	1245
att gac ttc tca gcc cag att gca gaa ggc atg gcc ttc atc gag cag Ile Asp Phe Ser Ala Gln Ile Ala Glu Gly Met Ala Phe Ile Glu Gln 340 345 350	1293
agg aac tac atc cac cga gac ctc cga gct gcc aac atc ttg gtc tct Arg Asn Tyr Ile His Arg Asp Leu Arg Ala Ala Asn Ile Leu Val Ser 355 360 365	1341
gca tcc ctg gtg tgt aag att gct gac ttt ggc ctg gcc cgg gtc att Ala Ser Leu Val Cys Lys Ile Ala Asp Phe Gly Leu Ala Arg Val Ile 370 375 380 385	1389
gag gac aac gag tac acg gct cgg gaa ggg gcc aag ttc ccc atc aag Glu Asp Asn Glu Tyr Thr Ala Arg Glu Gly Ala Lys Phe Pro Ile Lys 390 395 400	1437
tgg aca gct cct gaa gcc atc aac ttt ggc tcc ttc acc atc aag tca Trp Thr Ala Pro Glu Ala Ile Asn Phe Gly Ser Phe Thr Ile Lys Ser 405 410 415	1485
gac gtc tgg tcc ttt ggt atc ctg ctg atg gag atc gtc acc tac ggc Asp Val Trp Ser Phe Gly Ile Leu Leu Met Glu Ile Val Thr Tyr Gly 420 425 430	1533
cgg atc cct tac cca ggg atg tca aac cct gaa gtg atc cga gct ctg Arg Ile Pro Tyr Pro Gly Met Ser Asn Pro Glu Val Ile Arg Ala Leu 435 440 445	1581
gag cgt gga tac cgg atg cct cgc cca gag aac tgc cca gag gag ctc Glu Arg Gly Tyr Arg Met Pro Arg Pro Glu Asn Cys Pro Glu Glu Leu 450 455 460 465	1629
tac aac atc atg atg cgc tgc tgg aaa aac cgt ccg gag gag cgg ccg Tyr Asn Ile Met Met Arg Cys Trp Lys Asn Arg Pro Glu Glu Arg Pro 470 475 480	1677
acc ttc gaa tac atc cag agt gtg ctg gat gac ttc tac acg gcc aca Thr Phe Glu Tyr Ile Gln Ser Val Leu Asp Asp Phe Tyr Thr Ala Thr 485 490 495	1725
gag agc cag tac caa cag cag cca tga tagggaggac cagggcaggg Glu Ser Gln Tyr Gln Gln Gln Pro 500 505	1772

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<400> 42

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Asp Pro Thr Ser Thr Ile Lys Pro Gly Pro Asn Ser His Asn Ser Asn
 35 40 45

Thr Pro Gly Ile Arg Glu Ala Gly Ser Glu Asp Ile Ile Val Val Ala
 50 55 60

Leu Tyr Asp Tyr Glu Ala Ile His His Glu Asp Leu Ser Phe Gln Lys
 65 70 75 80

Gly Asp Gln Met Val Val Leu Glu Glu Ser Gly Glu Trp Trp Lys Ala
 85 90 95

Arg Ser Leu Ala Thr Arg Lys Glu Gly Tyr Ile Pro Ser Asn Tyr Val
 100 105 110

Ala Arg Val Asp Ser Leu Glu Thr Glu Glu Trp Phe Phe Lys Gly Ile
 115 120 125

Ser Arg Lys Asp Ala Glu Arg Gln Leu Leu Ala Pro Gly Asn Met Leu
 130 135 140

Gly Ser Phe Met Ile Arg Asp Ser Glu Thr Thr Lys Gly Ser Tyr Ser
 145 150 155 160

Leu Ser Val Arg Asp Tyr Asp Pro Arg Gln Gly Asp Thr Val Lys His
 165 170 175

Tyr Lys Ile Arg Thr Leu Asp Asn Gly Gly Phe Tyr Ile Ser Pro Arg
 180 185 190

Ser Thr Phe Ser Thr Leu Gln Glu Leu Val Asp His Tyr Lys Lys Gly
 195 200 205

Asn Asp Gly Leu Cys Gln Lys Leu Ser Val Pro Cys Met Ser Ser Lys
 210 215 220

Pro Gln Lys Pro Trp Glu Lys Asp Ala Trp Glu Ile Pro Arg Glu Ser
 225 230 235 240

Leu Lys Leu Glu Lys Lys Leu Gly Ala Gly Gln Phe Gly Glu Val Trp
 245 250 255

Met Ala Thr Tyr Asn Lys His Thr Lys Val Ala Val Lys Thr Met Lys
 260 265 270

Pro Gly Ser Met Ser Val Glu Ala Phe Leu Ala Glu Ala Asn Val Met
 275 280 285

Lys Thr Leu Gln His Asp Lys Leu Val Lys Leu His Ala Val Val Thr
 290 295 300

Lys Glu Pro Ile Tyr Ile Ile Thr Glu Phe Met Ala Lys Gly Ser Leu
 305 310 315 320

Leu Asp Phe Leu Lys Ser Asp Glu Gly Ser Lys Gln Pro Leu Pro Lys
 325 330 335

Leu Ile Asp Phe Ser Ala Gln Ile Ala Glu Gly Met Ala Phe Ile Glu
 340 345 350

Gln Arg Asn Tyr Ile His Arg Asp Leu Arg Ala Ala Asn Ile Leu Val
 355 360 365

Ser Ala Ser Leu Val Cys Lys Ile Ala Asp Phe Gly Leu Ala Arg Val
 370 375 380

Ile Glu Asp Asn Glu Tyr Thr Ala Arg Glu Gly Ala Lys Phe Pro Ile
 385 390 395 400

Lys Trp Thr Ala Pro Glu Ala Ile Asn Phe Gly Ser Phe Thr Ile Lys
405 410 415

Ser Asp Val Trp Ser Phe Gly Ile Leu Leu Met Glu Ile Val Thr Tyr
420 425 430

Gly Arg Ile Pro Tyr Pro Gly Met Ser Asn Pro Glu Val Ile Arg Ala
435 440 445

Leu Glu Arg Gly Tyr Arg Met Pro Arg Pro Glu Asn Cys Pro Glu Glu
450 455 460

Leu Tyr Asn Ile Met Met Arg Cys Trp Lys Asn Arg Pro Glu Glu Arg
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Met Glu Arg Pro Leu Cys Ser His Leu Cys Ser Cys Leu Ala
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atg ctg gcc ctc ctg tcc ccc ctg agc ctg gca cag tat gac agc tgg 337
Met Leu Ala Leu Leu Ser Pro Leu Ser Leu Ala Gln Tyr Asp Ser Trp
15 20 25 30
ccc cat tac ccc gag tac ttc cag caa ccg gct cct gag tat cac cag 385
Pro His Tyr Pro Glu Tyr Phe Gln Gln Pro Ala Pro Glu Tyr His Gln
35 40 45

ccc cag gcc ccc gcc aac gtg gcc aag att cag ctg cgc ctg gct ggg Pro Gln Ala Pro Ala Asn Val Ala Lys Ile Gln Leu Arg Leu Ala Gly 50 55 60	433
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cag tgg ggc acc gtg tgc gat gac gac ttc tcc atc cac gct gcc cac Gln Trp Gly Thr Val Cys Asp Asp Asp Phe Ser Ile His Ala Ala His 80 85 90	529
gtc gtc tgc cgg gag ctg ggc tat gtg gag gcc aag tcc tgg act gcc Val Val Cys Arg Glu Leu Gly Tyr Val Glu Ala Lys Ser Trp Thr Ala 95 100 105 110	577
agc tcc tcc tac ggc aag gga gaa ggg ccc atc tgg tta gac aat ctc Ser Ser Ser Tyr Gly Lys Gly Glu Gly Pro Ile Trp Leu Asp Asn Leu 115 120 125	625
cac tgt act ggc aac gag gcg acc ctt gca gca tgc acc tcc aat ggc His Cys Thr Gly Asn Glu Ala Thr Leu Ala Ala Cys Thr Ser Asn Gly 130 135 140	673
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gag agg aca tac aat acc aaa gtg tac aaa atg ttt gcc tca cgg agg Glu Arg Thr Tyr Asn Thr Lys Val Tyr Lys Met Phe Ala Ser Arg Arg 240 245 250	1009
aag cag cgc tac tgg cca ttc tcc atg gac tgc acc ggc aca gag gcc Lys Gln Arg Tyr Trp Pro Phe Ser Met Asp Cys Thr Gly Thr Glu Ala 255 260 265 270	1057
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Lys Asn Val Thr Cys Glu Asn Gly Leu Pro Ala Val Val Ser Cys Val	
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Pro Gly Gln Val Phe Ser Pro Asp Gly Pro Ser Arg Phe Arg Lys Ala	
305 310 315	
tac aag cca gag caa ccc ctg gtg cga ctg aga ggc ggt gcc tac atc	1249
Tyr Lys Pro Glu Gln Pro Leu Val Arg Leu Arg Gly Gly Ala Tyr Ile	
320 325 330	
ggg gag ggc cgc gtg gag gtg ctc aaa aat gga gaa tgg ggg acc gtc	1297
Gly Glu Gly Arg Val Glu Val Leu Lys Asn Gly Glu Trp Gly Thr Val	
335 340 345 350	
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Cys Asp Asp Lys Trp Asp Leu Val Ser Ala Ser Val Val Cys Arg Glu	
355 360 365	
ctg ggc ttt ggg agt gcc aaa gag gca gtc act ggc tcc cga ctg ggg	1393
Leu Gly Phe Gly Ser Ala Lys Glu Ala Val Thr Gly Ser Arg Leu Gly	
370 375 380	
caa ggg atc gga ccc atc cac ctc aac gag atc cag tgc aca ggc aat	1441
Gln Gly Ile Gly Pro Ile His Leu Asn Glu Ile Gln Cys Thr Gly Asn	
385 390 395	
gag aag tcc att ata gac tgc aag ttc aat gcc gag tct cag ggc tgc	1489
Glu Lys Ser Ile Ile Asp Cys Lys Phe Asn Ala Glu Ser Gln Gly Cys	
400 405 410	
aac cac gag gag gat gct ggt gtg aga tgc aac acc cct gcc atg ggc	1537
Asn His Glu Glu Asp Ala Gly Val Arg Cys Asn Thr Pro Ala Met Gly	
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ttg cag aag aag ctg cgc ctg aac ggc ggc cgc aat ccc tac gag ggc	1585
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435 440 445	
cga gtg gag gtg ctg gtg gag aga aac ggg tcc ctt gtg tgg ggg atg	1633
Arg Val Glu Val Leu Val Glu Arg Asn Gly Ser Leu Val Trp Gly Met	
450 455 460	
gtg tgt ggc caa aac tgg ggc atc gtg gag gcc atg gtg gtc tgc cgc	1681
Val Cys Gly Gln Asn Trp Gly Ile Val Glu Ala Met Val Val Cys Arg	
465 470 475	
cag ctg ggc ctg gga ttc gcc agc aac gcc ttc cag gag acc tgg tat	1729
Gln Leu Gly Leu Gly Phe Ala Ser Asn Ala Phe Gln Glu Thr Trp Tyr	
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tgg cac gga gat gtc aac agc aac aaa gtg gtc atg agt gga gtg aag	1777
Trp His Gly Asp Val Asn Ser Asn Lys Val Val Met Ser Gly Val Lys	
495 500 505 510	
tgc tcg gga acg gag ctg tcc ctg gcg cac tgc cgc cac gac ggg gag	1825
Cys Ser Gly Thr Glu Leu Ser Leu Ala His Cys Arg His Asp Gly Glu	
515 520 525	

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cag acc acc tac ctg gag gac cgg ccc atg ttc atg ctg cag tgt gcc Gln Thr Thr Tyr Leu Glu Asp Arg Pro Met Phe Met Leu Gln Cys Ala 560 565 570	1969
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cgc tat gac ggc cac cgc atc tgg atg tac aac tgc cac ata ggt ggt Arg Tyr Asp Gly His Arg Ile Trp Met Tyr Asn Cys His Ile Gly Gly 735 740 745 750	2497
tcc ttc agc gaa gag acg gaa aaa aag ttt gag cac ttc agc ggg ctc Ser Phe Ser Glu Glu Thr Glu Lys Lys Phe Glu His Phe Ser Gly Leu 755 760 765	2545

tta aac aac cag ctg tcc ccg cag taa agaagcctgc gtggtcaact 2592
 Leu Asn Asn Gln Leu Ser Pro Gln
 770

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Ala Pro Ala Asn Val Ala Lys Ile Gln Leu Arg Leu Ala Gly Gln Lys
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Arg Lys His Ser Glu Gly Arg Val Glu Val Tyr Tyr Asp Gly Gln Trp
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Gly	Thr	Val	Cys	Asp	Asp	Asp	Phe	Ser	Ile	His	Ala	Ala	His	Val	Val	85	90	95	
Cys	Arg	Glu	Leu	Gly	Tyr	Val	Glu	Ala	Lys	Ser	Trp	Thr	Ala	Ser	Ser	100	105	110	
Ser	Tyr	Gly	Lys	Gly	Glu	Gly	Pro	Ile	Trp	Leu	Asp	Asn	Leu	His	Cys	115	120	125	
Thr	Gly	Asn	Glu	Ala	Thr	Leu	Ala	Ala	Cys	Thr	Ser	Asn	Gly	Trp	Gly	130	135	140	
Val	Thr	Asp	Cys	Lys	His	Thr	Glu	Asp	Val	Gly	Val	Val	Cys	Ser	Asp	145	150	155	160
Lys	Arg	Ile	Pro	Gly	Phe	Lys	Phe	Asp	Asn	Ser	Leu	Ile	Asn	Gln	Ile	165	170	175	
Glu	Asn	Leu	Asn	Ile	Gln	Val	Glu	Asp	Ile	Arg	Ile	Arg	Ala	Ile	Leu	180	185	190	
Ser	Thr	Tyr	Arg	Lys	Arg	Thr	Pro	Val	Met	Glu	Gly	Tyr	Val	Glu	Val	195	200	205	
Lys	Glu	Gly	Lys	Thr	Trp	Lys	Gln	Ile	Cys	Asp	Lys	His	Trp	Thr	Ala	210	215	220	
Lys	Asn	Ser	Arg	Val	Val	Cys	Gly	Met	Phe	Gly	Phe	Pro	Gly	Glu	Arg	225	230	235	240
Thr	Tyr	Asn	Thr	Lys	Val	Tyr	Lys	Met	Phe	Ala	Ser	Arg	Arg	Lys	Gln	245	250	255	
Arg	Tyr	Trp	Pro	Phe	Ser	Met	Asp	Cys	Thr	Gly	Thr	Glu	Ala	His	Ile	260	265	270	
Ser	Ser	Cys	Lys	Leu	Gly	Pro	Gln	Val	Ser	Leu	Asp	Pro	Met	Lys	Asn	275	280	285	
Val	Thr	Cys	Glu	Asn	Gly	Leu	Pro	Ala	Val	Val	Ser	Cys	Val	Pro	Gly	290	295	300	
Gln	Val	Phe	Ser	Pro	Asp	Gly	Pro	Ser	Arg	Phe	Arg	Lys	Ala	Tyr	Lys	305	310	315	320

Thr Tyr Leu Glu Asp Arg Pro Met Phe Met Leu Gln Cys Ala Met Glu
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Glu Asn Cys Leu Ser Ala Ser Ala Ala Gln Thr Asp Pro Thr Thr Gly
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Tyr Arg Arg Leu Leu Arg Phe Ser Ser Gln Ile His Asn Asn Gly Gln
595 600 605

Ser Asp Phe Arg Pro Lys Asn Gly Arg His Ala Trp Ile Trp His Asp
610 615 620

Cys His Arg His Tyr His Ser Met Glu Val Phe Thr His Tyr Asp Leu
625 630 635 640

Leu Asn Leu Asn Gly Thr Lys Val Ala Glu Gly His Lys Ala Ser Phe
645 650 655

Cys Leu Glu Asp Thr Glu Cys Glu Gly Asp Ile Gln Lys Asn Tyr Glu
660 665 670

Cys Ala Asn Phe Gly Asp Gln Gly Ile Thr Met Gly Cys Trp Asp Met
675 680 685

Tyr Arg His Asp Ile Asp Cys Gln Trp Val Asp Ile Thr Asp Val Pro
690 695 700

Pro Gly Asp Tyr Leu Phe Gln Val Val Ile Asn Pro Asn Phe Glu Val
705 710 715 720

Ala Glu Ser Asp Tyr Ser Asn Asn Ile Met Lys Cys Arg Ser Arg Tyr
725 730 735

Asp Gly His Arg Ile Trp Met Tyr Asn Cys His Ile Gly Gly Ser Phe
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Asn Gln Leu Ser Pro Gln
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 ggaagagcct tccgcaggtc cccgccccgt cacgtgggcg ccggccccgg ccgctgcggt 180
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 Glu Gln Met Asp Gly Ile Ile Ala Gly Thr Lys Thr Gly Ala Asp Leu
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 agt gat ggt act tgt gag cct gga ctg gct tcc ccg gcc tcc tac atg 507
 Ser Asp Gly Thr Cys Glu Pro Gly Leu Ala Ser Pro Ala Ser Tyr Met
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 aac ccc ttc ccg gtg ctc cat ctc atc gag gac ttg agg ctg gcc ttg 555
 Asn Pro Phe Pro Val Leu His Leu Ile Glu Asp Leu Arg Leu Ala Leu
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 gag atg ctg gag ctt cct cag gag aga gca gcc ctc ctg agc cag atc 603
 Glu Met Leu Glu Leu Pro Gln Glu Arg Ala Ala Leu Leu Ser Gln Ile
 65 70 75
 cct ggc cca aca gct gcc tac ata aag gaa tgg ttt gaa gag agc ttg 651
 Pro Gly Pro Thr Ala Ala Tyr Ile Lys Glu Trp Phe Glu Glu Ser Leu
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 tcc cag gta aac cac cac agt gct gct agt aat gaa acc tac cag gaa 699
 Ser Gln Val Asn His His Ser Ala Ala Ser Asn Glu Thr Tyr Gln Glu
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 cgc ttg gca cgt cta gaa ggg gat aag gag tcc ctc ata ttg cag gtg 747
 Arg Leu Ala Arg Leu Glu Gly Asp Lys Glu Ser Leu Ile Leu Gln Val
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 Ser Val Leu Thr Asp Gln Val Glu Ala Gln Gly Glu Lys Ile Arg Asp
 130 135 140
 ctg gaa gtg tgt ctg gaa gga cac cag gtg aaa ctc aat gct gct gaa 843
 Leu Glu Val Cys Leu Glu Gly His Gln Val Lys Leu Asn Ala Ala Glu
 145 150 155
 gag atg ctt caa cag gag ctg cta agc cgc aca tct ctt gag acc cag 891

Glu	Met	Leu	Gln	Gln	Glu	Leu	Leu	Ser	Arg	Thr	Ser	Leu	Glu	Thr	Gln		
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Lys	Leu	Asp	Leu	Met	Thr	Glu	Val	Ser	Glu	Leu	Lys	Leu	Lys	Leu	Val		
	175					180					185						
ggc	atg	gag	aag	gag	cag	aga	gag	cag	gag	gag	aag	cag	aga	aaa	gca	987	
Gly	Met	Glu	Lys	Glu	Gln	Arg	Glu	Gln	Glu	Glu	Lys	Gln	Arg	Lys	Ala		
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gag	gag	tta	ctg	caa	gag	ctc	agg	cac	ctc	aaa	atc	aaa	gtg	gaa	gag	1035	
Glu	Glu	Leu	Leu	Gln	Glu	Leu	Arg	His	Leu	Lys	Ile	Lys	Val	Glu	Glu		
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Leu	Glu	Asn	Glu	Arg	Asn	Gln	Tyr	Glu	Trp	Lys	Leu	Lys	Ala	Thr	Lys		
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gct	gaa	gtc	gcc	cag	ctg	caa	gaa	cag	gtg	gcc	ctg	aaa	gat	gca	gaa	1131	
Ala	Glu	Val	Ala	Gln	Leu	Gln	Glu	Gln	Val	Ala	Leu	Lys	Asp	Ala	Glu		
	240					245						250					
att	gag	cgt	ctg	cac	agc	cag	ctc	tcc	cgg	aca	gca	gct	ctc	cac	agt	1179	
Ile	Glu	Arg	Leu	His	Ser	Gln	Leu	Ser	Arg	Thr	Ala	Ala	Leu	His	Ser		
	255					260					265						
gag	agt	cac	aca	gag	aga	gac	caa	gaa	att	caa	cgt	ctg	aaa	atg	ggg	1227	
Glu	Ser	His	Thr	Glu	Arg	Asp	Gln	Glu	Ile	Gln	Arg	Leu	Lys	Met	Gly		
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Glu	Leu	Thr	Gly	Leu	Leu	Asn	Gln	Tyr	Arg	Lys	Val	Lys	Glu	Ile	Val		
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Met	Val	Thr	Gln	Gly	Pro	Ser	Glu	Arg	Thr	Leu	Ser	Ile	Asn	Glu	Glu		
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gaa	ccg	gag	gga	ggg	ttc	agc	aag	tgg	aac	gct	aca	aat	aag	gac	cct	1419	
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gaa	gaa	tta	ttt	aaa	caa	gag	atg	cct	cca	aga	tgt	agc	tct	cct	aca	1467	
Glu	Glu	Leu	Phe	Lys	Gln	Glu	Met	Pro	Pro	Arg	Cys	Ser	Ser	Pro	Thr		
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gtg	ggg	cca	cct	cca	ttg	cca	cag	aaa	tca	ctg	gaa	acc	agg	gct	cag	1515	
Val	Gly	Pro	Pro	Pro	Leu	Pro	Gln	Lys	Ser	Leu	Glu	Thr	Arg	Ala	Gln		
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Lys	Lys	Leu	Ser	Cys	Ser	Leu	Glu	Asp	Leu	Arg	Ser	Glu	Ser	Val	Asp		
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Lys	Cys	Met	Asp	Gly	Asn	Gln	Pro	Phe	Pro	Val	Leu	Glu	Pro	Lys	Asp	
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Ser	Pro	Phe	Leu	Ala	Glu	His	Lys	Tyr	Pro	Thr	Leu	Pro	Gly	Lys	Leu	
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Ser	Gly	Ala	Thr	Pro	Asn	Gly	Glu	Ala	Ala	Lys	Ser	Pro	Pro	Thr	Ile	
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Cys	Gln	Pro	Asp	Ala	Thr	Gly	Ser	Ser	Leu	Leu	Arg	Leu	Arg	Asp	Thr	
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Trp	Ser	Thr	Glu	Arg	Val	Cys	Ala	Trp	Leu	Glu	Asp	Phe	Gly	Leu	Ala	
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Gln	Tyr	Val	Ile	Phe	Ala	Arg	Gln	Trp	Val	Ser	Ser	Gly	His	Thr	Leu	
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Pro	Leu	His	Arg	Lys	Lys	Leu	Val	Leu	Ala	Val	Lys	Ala	Ile	Asn	Thr	
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Trp	Leu	Asp	Asp	Ile	Gly	Leu	Pro	Gln	Tyr	Lys	Asp	Gln	Phe	His	Glu		
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Ser	Arg	Val	Asp	Arg	Arg	Met	Leu	Gln	Tyr	Leu	Thr	Val	Asn	Asp	Leu		
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Ala	Ile	His	Val	Leu	His	Val	Asn	Lys	Phe	Asn	Pro	His	Cys	Leu	His		
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Ala	Ser	Pro	Ala	Tyr	Thr	Pro	Leu	Thr	Thr	Thr	Ala	Lys	Val	Arg	Pro		
		800					805					810					
agg	aaa	cta	gga	ttt	tca	cac	ttc	gga	aac	ata	aga	aaa	aag	aag	ttc	2859	
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Ser	Asp	Ser	His	Arg	Val	Tyr	Ser	Gly	Tyr	Arg	Gly	Leu	Ser	Pro	Leu		
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Asp	Ala	Pro	Glu	Leu	Asp	Gly	Leu	Asp	Gln	Val	Gly	Gln	Ile	Ser			
			865				870						875				
tgcccttgctc	acctgccctc	tgtgcaccct	gagagctcac	agtaacactg	tgtgtgtcac											3063	

catataactg cacctcaccc ccgcacgtgt gcatgactcg cagagaatat tccagcaatt 3123
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ctgagatcaa agggatgagc aacagggact tctgccacag tgacaatgga attgtgttgt 3483
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<213> human

<400> 46

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Thr Cys Glu Pro Gly Leu Ala Ser Pro Ala Ser Tyr Met Asn Pro Phe
35 40 45

Pro Val Leu His Leu Ile Glu Asp Leu Arg Leu Ala Leu Glu Met Leu
50 55 60

Glu Leu Pro Gln Glu Arg Ala Ala Leu Leu Ser Gln Ile Pro Gly Pro
65 70 75 80

Thr Ala Ala Tyr Ile Lys Glu Trp Phe Glu Glu Ser Leu Ser Gln Val
85 90 95

Asn His His Ser Ala Ala Ser Asn Glu Thr Tyr Gln Glu Arg Leu Ala
100 105 110

Arg Leu Glu Gly Asp Lys Glu Ser Leu Ile Leu Gln Val Ser Val Leu
115 120 125

Thr Asp Gln Val Glu Ala Gln Gly Glu Lys Ile Arg Asp Leu Glu Val
130 135 140

Cys	Leu	Glu	Gly	His	Gln	Val	Lys	Leu	Asn	Ala	Ala	Glu	Glu	Met	Leu	145	150	155	160
Gln	Gln	Glu	Leu	Leu	Ser	Arg	Thr	Ser	Leu	Glu	Thr	Gln	Lys	Leu	Asp	165	170	175	
Leu	Met	Thr	Glu	Val	Ser	Glu	Leu	Lys	Leu	Lys	Leu	Val	Gly	Met	Glu	180	185	190	
Lys	Glu	Gln	Arg	Glu	Gln	Glu	Glu	Lys	Gln	Arg	Lys	Ala	Glu	Glu	Leu	195	200	205	
Leu	Gln	Glu	Leu	Arg	His	Leu	Lys	Ile	Lys	Val	Glu	Glu	Leu	Glu	Asn	210	215	220	
Glu	Arg	Asn	Gln	Tyr	Glu	Trp	Lys	Leu	Lys	Ala	Thr	Lys	Ala	Glu	Val	225	230	235	240
Ala	Gln	Leu	Gln	Glu	Gln	Val	Ala	Leu	Lys	Asp	Ala	Glu	Ile	Glu	Arg	245	250	255	
Leu	His	Ser	Gln	Leu	Ser	Arg	Thr	Ala	Ala	Leu	His	Ser	Glu	Ser	His	260	265	270	
Thr	Glu	Arg	Asp	Gln	Glu	Ile	Gln	Arg	Leu	Lys	Met	Gly	Met	Glu	Thr	275	280	285	
Leu	Leu	Leu	Ala	Asn	Glu	Asp	Lys	Asp	Arg	Arg	Ile	Glu	Glu	Leu	Thr	290	295	300	
Gly	Leu	Leu	Asn	Gln	Tyr	Arg	Lys	Val	Lys	Glu	Ile	Val	Met	Val	Thr	305	310	315	320
Gln	Gly	Pro	Ser	Glu	Arg	Thr	Leu	Ser	Ile	Asn	Glu	Glu	Glu	Pro	Glu	325	330	335	
Gly	Gly	Phe	Ser	Lys	Trp	Asn	Ala	Thr	Asn	Lys	Asp	Pro	Glu	Glu	Leu	340	345	350	
Phe	Lys	Gln	Glu	Met	Pro	Pro	Arg	Cys	Ser	Ser	Pro	Thr	Val	Gly	Pro	355	360	365	
Pro	Pro	Leu	Pro	Gln	Lys	Ser	Leu	Glu	Thr	Arg	Ala	Gln	Lys	Lys	Leu	370	375	380	

Ser	Cys	Ser	Leu	Glu	Asp	Leu	Arg	Ser	Glu	Ser	Val	Asp	Lys	Cys	Met	385	390	395	400
Asp	Gly	Asn	Gln	Pro	Phe	Pro	Val	Leu	Glu	Pro	Lys	Asp	Ser	Pro	Phe	405	410	415	
Leu	Ala	Glu	His	Lys	Tyr	Pro	Thr	Leu	Pro	Gly	Lys	Leu	Ser	Gly	Ala	420	425	430	
Thr	Pro	Asn	Gly	Glu	Ala	Ala	Lys	Ser	Pro	Pro	Thr	Ile	Cys	Gln	Pro	435	440	445	
Asp	Ala	Thr	Gly	Ser	Ser	Leu	Leu	Arg	Leu	Arg	Asp	Thr	Glu	Ser	Gly	450	455	460	
Trp	Asp	Asp	Thr	Ala	Val	Val	Asn	Asp	Leu	Ser	Ser	Thr	Ser	Ser	Gly	465	470	475	480
Thr	Glu	Ser	Gly	Pro	Gln	Ser	Pro	Leu	Thr	Pro	Asp	Gly	Lys	Arg	Asn	485	490	495	
Pro	Lys	Gly	Ile	Lys	Lys	Phe	Trp	Gly	Lys	Ile	Arg	Arg	Thr	Gln	Ser	500	505	510	
Gly	Asn	Phe	Tyr	Thr	Asp	Thr	Leu	Gly	Met	Ala	Glu	Phe	Arg	Arg	Gly	515	520	525	
Gly	Leu	Arg	Ala	Thr	Ala	Gly	Pro	Arg	Leu	Ser	Arg	Thr	Arg	Asp	Ser	530	535	540	
Lys	Gly	Gln	Lys	Ser	Asp	Ala	Asn	Ala	Pro	Phe	Ala	Gln	Trp	Ser	Thr	545	550	555	560
Glu	Arg	Val	Cys	Ala	Trp	Leu	Glu	Asp	Phe	Gly	Leu	Ala	Gln	Tyr	Val	565	570	575	
Ile	Phe	Ala	Arg	Gln	Trp	Val	Ser	Ser	Gly	His	Thr	Leu	Leu	Thr	Ala	580	585	590	
Thr	Pro	Gln	Asp	Met	Glu	Lys	Glu	Leu	Gly	Ile	Lys	His	Pro	Leu	His	595	600	605	
Arg	Lys	Lys	Leu	Val	Leu	Ala	Val	Lys	Ala	Ile	Asn	Thr	Lys	Gln	Glu	610	615	620	

Glu Lys Ser Ala Leu Leu Asp His Ile Trp Val Thr Arg Trp Leu Asp
625 630 635 640

Asp Ile Gly Leu Pro Gln Tyr Lys Asp Gln Phe His Glu Ser Arg Val
645 650 655

Asp Arg Arg Met Leu Gln Tyr Leu Thr Val Asn Asp Leu Leu Phe Leu
660 665 670

Lys Val Thr Ser Gln Leu His His Leu Ser Ile Lys Cys Ala Ile His
675 680 685

Val Leu His Val Asn Lys Phe Asn Pro His Cys Leu His Arg Arg Pro
690 695 700

Ala Asp Glu Ser Asn Leu Ser Pro Ser Glu Val Val Gln Trp Ser Asn
705 710 715 720

His Arg Val Met Glu Trp Leu Arg Ser Val Asp Leu Ala Glu Tyr Ala
725 730 735

Pro Asn Leu Arg Gly Ser Gly Val His Gly Gly Leu Ile Ile Leu Glu
740 745 750

Pro Arg Phe Thr Gly Asp Thr Leu Ala Met Leu Leu Asn Ile Pro Pro
755 760 765

Gln Lys Thr Leu Leu Arg Arg His Leu Thr Thr Lys Phe Asn Ala Leu
770 775 780

Ile Gly Pro Glu Ala Glu Gln Glu Lys Arg Glu Lys Met Ala Ser Pro
785 790 795 800

Ala Tyr Thr Pro Leu Thr Thr Thr Ala Lys Val Arg Pro Arg Lys Leu
805 810 815

Gly Phe Ser His Phe Gly Asn Ile Arg Lys Lys Lys Phe Asp Glu Ser
820 825 830

Thr Asp Tyr Ile Cys Pro Met Glu Pro Ser Asp Gly Val Ser Asp Ser
835 840 845

His Arg Val Tyr Ser Gly Tyr Arg Gly Leu Ser Pro Leu Asp Ala Pro
850 855 860

Glu Leu Asp Gly Leu Asp Gln Val Gly Gln Ile Ser
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 <213> human

<220>
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 <222> (77)..(1180)

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 Met Arg Trp Phe Leu Pro Trp Thr Leu Ala Ala Val
 1 5 10
 aca gca gca gcc gcc agc acc gtc ctg gcc acg gcc ctc tct cca gcc 160
 Thr Ala Ala Ala Ala Ser Thr Val Leu Ala Thr Ala Leu Ser Pro Ala
 15 20 25
 cct acg acc atg gac ttt acc cca gct cca ctg gag gac acc tcc tca 208
 Pro Thr Thr Met Asp Phe Thr Pro Ala Pro Leu Glu Asp Thr Ser Ser
 30 35 40
 cgc ccc caa ttc tgc aag tgg cca tgt gag tgc ccg cca tcc cca ccc 256
 Arg Pro Gln Phe Cys Lys Trp Pro Cys Glu Cys Pro Pro Ser Pro Pro
 45 50 55 60
 cgc tgc ccg ctg ggg gtc agc ctc atc aca gat ggc tgt gag tgc tgt 304
 Arg Cys Pro Leu Gly Val Ser Leu Ile Thr Asp Gly Cys Glu Cys Cys
 65 70 75
 aag atg tgc gct cag cag ctt ggg gac aac tgc acg gag gct gcc atc 352
 Lys Met Cys Ala Gln Gln Leu Gly Asp Asn Cys Thr Glu Ala Ala Ile
 80 85 90
 tgt gac ccc cac cgg ggc ctc tac tgt gac tac agc ggg gac cgc ccg 400
 Cys Asp Pro His Arg Gly Leu Tyr Cys Asp Tyr Ser Gly Asp Arg Pro
 95 100 105
 agg tac gca ata gga gtg tgt gca cag gtg gtc ggt gtg ggc tgc gtc 448
 Arg Tyr Ala Ile Gly Val Cys Ala Gln Val Val Gly Val Gly Cys Val
 110 115 120
 ctg gat ggg gtg cgc tac aac aac ggc cag tcc ttc cag cct aac tgc 496
 Leu Asp Gly Val Arg Tyr Asn Asn Gly Gln Ser Phe Gln Pro Asn Cys
 125 130 135 140
 aag tac aac tgc acg tgc atc gac ggc gcg gtg ggc tgc aca cca ctg 544
 Lys Tyr Asn Cys Thr Cys Ile Asp Gly Ala Val Gly Cys Thr Pro Leu
 145 150 155
 tgc ctc cga gtg cgc ccc ccg cgt ctc tgg tgc ccc cac ccg cgg cgc 592
 Cys Leu Arg Val Arg Pro Pro Arg Leu Trp Cys Pro His Pro Arg Arg

160	165	170	
gtg agc ata cct ggc cac tgc tgt gag cag tgg gta tgt gag gac gac Val Ser Ile Pro Gly His Cys Cys Glu Gln Trp Val Cys Glu Asp Asp 175 180 185			640
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gct gtg ggt gag gtg gag gca tgg cac agg aac tgc ata gcc tac aca Ala Val Gly Glu Val Glu Ala Trp His Arg Asn Cys Ile Ala Tyr Thr 205 210 215 220			736
agc ccc tgg agc cct tgc tcc acc agc tgc ggc ctg ggg gtc tcc act Ser Pro Trp Ser Pro Cys Ser Thr Ser Cys Gly Leu Gly Val Ser Thr 225 230 235			784
cgg atc tcc aat gtt aac gcc cag tgc tgg cct gag caa gag agc cgc Arg Ile Ser Asn Val Asn Ala Gln Cys Trp Pro Glu Gln Glu Ser Arg 240 245 250			832
ctc tgc aac ttg cgg cca tgc gat gtg gac atc cat aca ctc att aag Leu Cys Asn Leu Arg Pro Cys Asp Val Asp Ile His Thr Leu Ile Lys 255 260 265			880
gca ggg aag aag tgt ctg gct gtg tac cag cca gag gca tcc atg aac Ala Gly Lys Lys Cys Leu Ala Val Tyr Gln Pro Glu Ala Ser Met Asn 270 275 280			928
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cag gtc cta tgg att aat gcc tgc ttc tgt aac ctg agc tgt agg aat Gln Val Leu Trp Ile Asn Ala Cys Phe Cys Asn Leu Ser Cys Arg Asn 335 340 345			1120
ccc aat gac atc ttt gct gac ttg gaa tcc tac cct gac ttc tca gaa Pro Asn Asp Ile Phe Ala Asp Leu Glu Ser Tyr Pro Asp Phe Ser Glu 350 355 360			1168
att gcc aac tag gcaggcacia atcttgggtc ttggggacta acccaatgcc Ile Ala Asn 365			1220
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<210> 48
<211> 367
<212> PRT
<213> human

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<400> 48

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Asp Phe Thr Pro Ala Pro Leu Glu Asp Thr Ser Ser Arg Pro Gln Phe
 35 40 45

Cys Lys Trp Pro Cys Glu Cys Pro Pro Ser Pro Pro Arg Cys Pro Leu
 50 55 60

Gly Val Ser Leu Ile Thr Asp Gly Cys Glu Cys Cys Lys Met Cys Ala
 65 70 75 80

Gln Gln Leu Gly Asp Asn Cys Thr Glu Ala Ala Ile Cys Asp Pro His
 85 90 95

Arg Gly Leu Tyr Cys Asp Tyr Ser Gly Asp Arg Pro Arg Tyr Ala Ile
 100 105 110

Gly Val Cys Ala Gln Val Val Gly Val Gly Cys Val Leu Asp Gly Val
 115 120 125

Arg Tyr Asn Asn Gly Gln Ser Phe Gln Pro Asn Cys Lys Tyr Asn Cys
 130 135 140

Thr Cys Ile Asp Gly Ala Val Gly Cys Thr Pro Leu Cys Leu Arg Val
 145 150 155 160

Arg Pro Pro Arg Leu Trp Cys Pro His Pro Arg Arg Val Ser Ile Pro
 165 170 175

Gly His Cys Cys Glu Gln Trp Val Cys Glu Asp Asp Ala Lys Arg Pro
 180 185 190

Arg Lys Thr Ala Pro Arg Asp Thr Gly Ala Phe Asp Ala Val Gly Glu
 195 200 205

Val Glu Ala Trp His Arg Asn Cys Ile Ala Tyr Thr Ser Pro Trp Ser
 210 215 220

Pro Cys Ser Thr Ser Cys Gly Leu Gly Val Ser Thr Arg Ile Ser Asn
 225 230 235 240

Val Asn Ala Gln Cys Trp Pro Glu Gln Glu Ser Arg Leu Cys Asn Leu
 245 250 255

Arg Pro Cys Asp Val Asp Ile His Thr Leu Ile Lys Ala Gly Lys Lys
 260 265 270

Cys Leu Ala Val Tyr Gln Pro Glu Ala Ser Met Asn Phe Thr Leu Ala
 275 280 285

Gly Cys Ile Ser Thr Arg Ser Tyr Gln Pro Lys Tyr Cys Gly Val Cys
 290 295 300

Met Asp Asn Arg Cys Cys Ile Pro Tyr Lys Ser Lys Thr Ile Asp Val
 305 310 315 320

Ser Phe Gln Cys Pro Asp Gly Leu Gly Phe Ser Arg Gln Val Leu Trp
 325 330 335

Ile Asn Ala Cys Phe Cys Asn Leu Ser Cys Arg Asn Pro Asn Asp Ile
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Phe Ala Asp Leu Glu Ser Tyr Pro Asp Phe Ser Glu Ile Ala Asn
 355 360 365

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 <211> 1768
 <212> DNA
 <213> human

<220>
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 <222> (356)..(868)

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 gccccgcccc gccgggccc tccccgtcgg gttccccagc cacagcctta cctacgggct 180
 cctgactccg caaggcttcc agaagatgct cgaaccaccg gccggggcct cggggcagca 240
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 Met
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 ccg gtc atg agg ctg ttc cct tgc ttc ctg cag ctc ctg gcc ggg ctg 406
 Pro Val Met Arg Leu Phe Pro Cys Phe Leu Gln Leu Leu Ala Gly Leu
 5 10 15
 gcg ctg cct gct gtg ccc ccc cag cag tgg gcc ttg tct gct ggg aac 454
 Ala Leu Pro Ala Val Pro Pro Gln Gln Trp Ala Leu Ser Ala Gly Asn
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ggc tgc tca gag gtg gaa gtg gta ccc ttc cag gaa gtg tgg ggc cgc	502
Gly Ser Ser Glu Val Glu Val Val Pro Phe Gln Glu Val Trp Gly Arg	
35 40 45	
agc tac tgc cgg gcg ctg gag agg ctg gtg gac gtc gtg tcc gag tac	550
Ser Tyr Cys Arg Ala Leu Glu Arg Leu Val Asp Val Val Ser Glu Tyr	
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ccc agc gag gtg gag cac atg ttc agc cca tcc tgt gtc tcc ctg ctg	598
Pro Ser Glu Val Glu His Met Phe Ser Pro Ser Cys Val Ser Leu Leu	
70 75 80	
cgc tgc acc ggc tgc tgc ggc gat gag aat ctg cac tgt gtg ccg gtg	646
Arg Cys Thr Gly Cys Cys Gly Asp Glu Asn Leu His Cys Val Pro Val	
85 90 95	
gag acg gcc aat gtc acc atg cag ctc cta aag atc cgt tct ggg gac	694
Glu Thr Ala Asn Val Thr Met Gln Leu Leu Lys Ile Arg Ser Gly Asp	
100 105 110	
cgg ccc tcc tac gtg gag ctg acg ttc tct cag cac gtt cgc tgc gaa	742
Arg Pro Ser Tyr Val Glu Leu Thr Phe Ser Gln His Val Arg Cys Glu	
115 120 125	
tgc cgg cct ctg cgg gag aag atg aag ccg gaa agg agg aga ccc aag	790
Cys Arg Pro Leu Arg Glu Lys Met Lys Pro Glu Arg Arg Arg Pro Lys	
130 135 140 145	
ggc agg ggg aag agg agg aga gag aag cag aga ccc aca gac tgc cac	838
Gly Arg Gly Lys Arg Arg Arg Glu Lys Gln Arg Pro Thr Asp Cys His	
150 155 160	
ctg tgc ggc gat gct gtt ccc cgg agg taa cccacccctt ggaggagaga	888
Leu Cys Gly Asp Ala Val Pro Arg Arg	
165 170	
gaccccgcac ccggctcgtg tatttattac cgtcacactc ttcagtgact cctgctggta	948
cctgccctct atttattagc caactgtttc cctgctgaat gcctcgctcc cttcaagacg	1008
aggggcaggg aaggacagga ccctcaggaa ttcagtgcct tcaacaacgt gagagaaaga	1068
gagaagccag ccacagaccc ctgggagctt ccgctttgaa agaagcaaga cacgtggcct	1128
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<210> 50
<211> 170
<212> PRT
<213> human

<400> 50

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Asn Gly Ser Ser Glu Val Glu Val Val Pro Phe Gln Glu Val Trp Gly
35 40 45

Arg Ser Tyr Cys Arg Ala Leu Glu Arg Leu Val Asp Val Val Ser Glu
50 55 60

Tyr Pro Ser Glu Val Glu His Met Phe Ser Pro Ser Cys Val Ser Leu
65 70 75 80

Leu Arg Cys Thr Gly Cys Cys Gly Asp Glu Asn Leu His Cys Val Pro
85 90 95

Val Glu Thr Ala Asn Val Thr Met Gln Leu Leu Lys Ile Arg Ser Gly
100 105 110

Asp Arg Pro Ser Tyr Val Glu Leu Thr Phe Ser Gln His Val Arg Cys
115 120 125

Glu Cys Arg Pro Leu Arg Glu Lys Met Lys Pro Glu Arg Arg Arg Pro
130 135 140

Lys Gly Arg Gly Lys Arg Arg Arg Glu Lys Gln Arg Pro Thr Asp Cys
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His Leu Cys Gly Asp Ala Val Pro Arg Arg
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<210> 51

<211> 3874
 <212> DNA
 <213> human

<220>
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 <222> (1)..(1902)

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1                               5                               10          15

cat aaa aag ttc tgg aag ctt ggt gca gta att ttt ttc ttt ata ata      96
His Lys Lys Phe Trp Lys Leu Gly Ala Val Ile Phe Phe Phe Ile Ile
                20                               25          30

gtt ttg gtt tta atg caa aga gaa gta agt gtt caa tat tcc aaa gag      144
Val Leu Val Leu Met Gln Arg Glu Val Ser Val Gln Tyr Ser Lys Glu
                35                               40          45

gaa tca agg atg gaa agg aac atg aaa aac aaa aac aag atg ttg gat      192
Glu Ser Arg Met Glu Arg Asn Met Lys Asn Lys Asn Lys Met Leu Asp
                50                               55          60

tta atg cta gaa gct gta aac aat att aag gat gcc atg cca aaa atg      240
Leu Met Leu Glu Ala Val Asn Asn Ile Lys Asp Ala Met Pro Lys Met
        65                               70          75          80

caa ata gga gca cct gtc agg caa aac att gat gct ggt gag aga cct      288
Gln Ile Gly Ala Pro Val Arg Gln Asn Ile Asp Ala Gly Glu Arg Pro
                85                               90          95

tgt ttg caa gga tat tat aca gca gca gaa ttg aag cct gtc ctt gac      336
Cys Leu Gln Gly Tyr Tyr Thr Ala Ala Glu Leu Lys Pro Val Leu Asp
                100                              105          110

cgt cca cct cag gat tca aat gca cct ggt gct tct ggt aaa gca ttc      384
Arg Pro Pro Gln Asp Ser Asn Ala Pro Gly Ala Ser Gly Lys Ala Phe
                115                              120          125

aag aca acc aat tta agt gtt gaa gag caa aag gaa aag gaa cgt ggg      432
Lys Thr Thr Asn Leu Ser Val Glu Glu Gln Lys Glu Lys Glu Arg Gly
                130                              135          140

gaa gct aaa cac tgc ttt aat gct ttc gca agt gac agg att tct ttg      480
Glu Ala Lys His Cys Phe Asn Ala Phe Ala Ser Asp Arg Ile Ser Leu
        145                              150          155          160

cac cga gat ctt gga cca gac act cga cct cct gaa tgt att gaa caa      528
His Arg Asp Leu Gly Pro Asp Thr Arg Pro Pro Glu Cys Ile Glu Gln
                165                              170          175

aaa ttt aag cgc tgc cct ccc ctg ccc acc acc agt gtc ata ata gtt      576
Lys Phe Lys Arg Cys Pro Pro Leu Pro Thr Thr Ser Val Ile Ile Val
                180                              185          190

ttt cat aat gaa gcg tgg tcc acg ttg ctt aga act gtc cac agt gtg      624
Phe His Asn Glu Ala Trp Ser Thr Leu Leu Arg Thr Val His Ser Val

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gat gct agt gta gat gag tac tta cat gat aaa cta gat gaa tat gta Asp Ala Ser Val Asp Glu Tyr Leu His Asp Lys Leu Asp Glu Tyr Val 225 230 235 240			720
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435	440	445	
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Val Leu Val Leu Met Gln Arg Glu Val Ser Val Gln Tyr Ser Lys Glu
35 40 45

Glu Ser Arg Met Glu Arg Asn Met Lys Asn Lys Asn Lys Met Leu Asp
50 55 60

Leu Met Leu Glu Ala Val Asn Asn Ile Lys Asp Ala Met Pro Lys Met
65 70 75 80

Gln Ile Gly Ala Pro Val Arg Gln Asn Ile Asp Ala Gly Glu Arg Pro
85 90 95

Cys Leu Gln Gly Tyr Tyr Thr Ala Ala Glu Leu Lys Pro Val Leu Asp
100 105 110

Arg Pro Pro Gln Asp Ser Asn Ala Pro Gly Ala Ser Gly Lys Ala Phe
115 120 125

Lys Thr Thr Asn Leu Ser Val Glu Glu Gln Lys Glu Lys Glu Arg Gly
130 135 140

Glu Ala Lys His Cys Phe Asn Ala Phe Ala Ser Asp Arg Ile Ser Leu
145 150 155 160

His Arg Asp Leu Gly Pro Asp Thr Arg Pro Pro Glu Cys Ile Glu Gln
165 170 175

Lys Phe Lys Arg Cys Pro Pro Leu Pro Thr Thr Ser Val Ile Ile Val
180 185 190

Phe His Asn Glu Ala Trp Ser Thr Leu Leu Arg Thr Val His Ser Val
195 200 205

Leu Tyr Ser Ser Pro Ala Ile Leu Leu Lys Glu Ile Ile Leu Val Asp
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Asp	Ala	Ser	Val	Asp	Glu	Tyr	Leu	His	Asp	Lys	Leu	Asp	Glu	Tyr	Val
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Lys	Gln	Phe	Ser	Ile	Val	Lys	Ile	Val	Arg	Gln	Arg	Glu	Arg	Lys	Gly
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			260					265					270		
Leu	Thr	Phe	Leu	Asp	Ala	His	Cys	Glu	Cys	Phe	Tyr	Gly	Trp	Leu	Glu
		275					280					285			
Pro	Leu	Leu	Ala	Arg	Ile	Ala	Glu	Asn	Tyr	Thr	Ala	Val	Val	Ser	Pro
	290					295					300				
Asp	Ile	Ala	Ser	Ile	Asp	Leu	Asn	Thr	Phe	Glu	Phe	Asn	Lys	Pro	Ser
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Pro	Tyr	Gly	Ser	Asn	His	Asn	Arg	Gly	Asn	Phe	Asp	Trp	Ser	Leu	Ser
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Phe	Gly	Trp	Glu	Ser	Leu	Pro	Asp	His	Glu	Lys	Gln	Arg	Arg	Lys	Asp
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Glu	Thr	Tyr	Pro	Ile	Lys	Thr	Pro	Thr	Phe	Ala	Gly	Gly	Leu	Phe	Ser
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Cys	Gly	Gly	Gln	Leu	Glu	Ile	Met	Pro	Cys	Ser	Val	Val	Gly	His	Val
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Phe	Arg	Ser	Lys	Ser	Pro	His	Ser	Phe	Pro	Lys	Gly	Thr	Gln	Val	Ile
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Ala	Arg	Asn	Gln	Val	Arg	Leu	Ala	Glu	Val	Trp	Met	Asp	Glu	Tyr	Lys
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Glu	Ile	Phe	Tyr	Arg	Arg	Asn	Thr	Asp	Ala	Ala	Lys	Ile	Val	Lys	Gln
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Lys Ala Phe Gly Asp Leu Ser Lys Arg Phe Glu Ile Lys His Arg Leu
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Arg Cys Lys Asn Phe Thr Trp Tyr Leu Asn Asn Ile Tyr Pro Glu Val
 485 490 495

Tyr Val Pro Asp Leu Asn Pro Val Ile Ser Gly Tyr Ile Lys Ser Val
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Gly Gln Pro Leu Cys Leu Asp Val Gly Glu Asn Asn Gln Gly Gly Lys
 515 520 525

Pro Leu Ile Met Tyr Thr Cys His Gly Leu Gly Gly Asn Gln Tyr Phe
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Glu Tyr Ser Ala Gln His Glu Ile Arg His Asn Ile Gln Lys Glu Leu
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Cys Leu His Ala Ala Gln Gly Leu Val Gln Leu Lys Ala Cys Thr Tyr
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Lys Gly His Lys Thr Val Val Thr Gly Glu Gln Ile Trp Glu Ile Gln
 580 585 590

Lys Asp Gln Leu Leu Tyr Asn Pro Phe Leu Lys Met Cys Leu Ser Ala
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